



GROUNDDED

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Grant-Adams Master Gardeners

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<https://extension.wsu.edu/grant/gardening> | ga.mgvolunteers@wsu.edu

Ephrata Seed Library Offers Free Seeds to the Community

The Grant-Adams Master Gardeners obtained a grant from the Washington State Master Gardener Program to start a seed-saving catalog program at the Ephrata branch of the North Central Washington Regional Library in January 2017, and the seed-saving program is still going strong today.

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The Seed Library catalog has an extensive assortment of heirloom and open-pollinated seed packets for free checkout to the community. All seeds in the catalog grow well in the Columbia Basin's climate and environment. The catalog offers local herb, vegetable, flower, and fruit seeds that people can check out and then plant in their own gardens. At the end of the growing season, borrowers are encouraged to save seeds from these plants and return a portion of them to the Ephrata Public Library to replenish the seed supply for the next year.

This Seed Library program is not a seedbank, designed to store seeds for long-term preservation. Instead, it is a local resource to encourage more people in the community to learn how to grow their own food, save seeds that grow well in this area, and preserve plant varieties for future users. Borrowers are asked to return seeds, if possible, but there is no penalty if they don't.

Seeds are grouped in the library's catalog into three categories for their ease of being collected and saved (not for their ease of growing): beginner (green), intermediate (yellow), and advanced (red). Since the seeds available at the Ephrata Public Library are all open-pollinated or heirloom varieties, not hybrids, they will produce the same type of plant the next year as their parent plant. Seeds saved from hybrid plants will not produce plants exactly like the parent plant, and the library will not accept hybrid seeds to be put in its seed catalog.

Beginner seeds are less likely to cross-pollinate with other plants in the same family. According to Ephrata Library Technician Alissa Nix, who has been overseeing this program for several years, the beginner seed packets available now to check out include:

- **Vegetables**—artichoke, bean, eggplant, endive, lettuce, okra, pea, pepper (both sweet and hot), soybean, 21 varieties of tomato (cherry, Roma, bush).
- **Herbs**—anise, basil, catmint, lavender, stevia, thyme.

- **Flowers**—bachelor button, black-eyed Susan, calendula, columbine, cosmos, echinacea, gaillardia, hollyhock, lupine, marigold, milkweed, morning glory, nasturtium, nigella, poppy, salvia, scabiosa, snapdragon, sunflower, zinnia.
- **Ornamental grass**—bunny tails.
- **Fruit**—sunberry.

Intermediate seeds in the library catalog grow plants that are wind- or insect-pollinated, or are likely to cross-pollinate with other plant varieties, which may result in a “mystery” plant. They may be biennial, taking more than one season to produce seeds. The available intermediate seed packets for checkout at the library include:

- **Vegetables**—celeriac, cucumber, fennel, gourd, leek, onion, squash (acorn, pumpkin, summer/winter, zucchini).
- **Herbs**—chive, cilantro, dill, parsley.
- **Fruit**—seven varieties of cantaloupe, three varieties of melon (green, white, orange), watermelon.

Advanced seeds available in the library catalog are similar to intermediate seeds in that they are wind- or insect-pollinated and very likely to cross-pollinate with other plant varieties. They also may take more than one season to produce seeds. These plants may need hand pollination, tenting, or other methods to ensure their varietal purity. Examples include corn, amaranth, beet, chard, spinach, broccoli, kale, cabbage, cauliflower, turnip, arugula, Brussels sprout, mustard, collards, radish. The library currently has these seeds available in its seed catalog as well as cress, carrot, Swiss chard, and lilac seeds.



Alissa Nix, Ephrata Library Technician, standing by the Seed Library catalog. Photo credit: D. Escure

Separate binders are kept by category (beginner, intermediate, advanced) that provide information about each variety of seed, availability to check out, and seed-saving difficulty. The Grant-Adams Master Gardeners are planning to hold an informational session for the public on the best seed-saving techniques and tips later this summer at the library, according to Sharon Hastings, Master Gardener Intern, who is working closely with Alissa Nix, to hold the event. The date/time will be announced soon and will be posted on the library’s website: <https://www.ncwlibraries.org/locations/ephrata-public-library>

For additional information on seed saving, contact Alissa Nix at the Ephrata Library (anix@ncwlibraries.org) or contact the Grant-Adams Master Gardeners via email: ga.mgvolunteers@wsu.edu.

Grant-Adams Master Gardeners Held Two Successful Community Events

• Annual Gardening Symposium - April 22, 2023

Over 100 people attended the 6th Annual Columbia Basin Eco-Gardening Symposium at the Columbia Basin Technical Skills Center in Moses Lake. The free event, co-sponsored by the Grant-Adams Master Gardeners and the Columbia Basin Conservation District, provided current, science-based information on sustainable gardening for the home gardener.

Attendees rated the symposium excellent on their evaluation forms collected at the end of the program for increasing their knowledge of gardening issues in the Columbia Basin. Master Gardener interns Bobbie Bodenman and Sharon Hastings served as the Masters of Ceremony for the event.



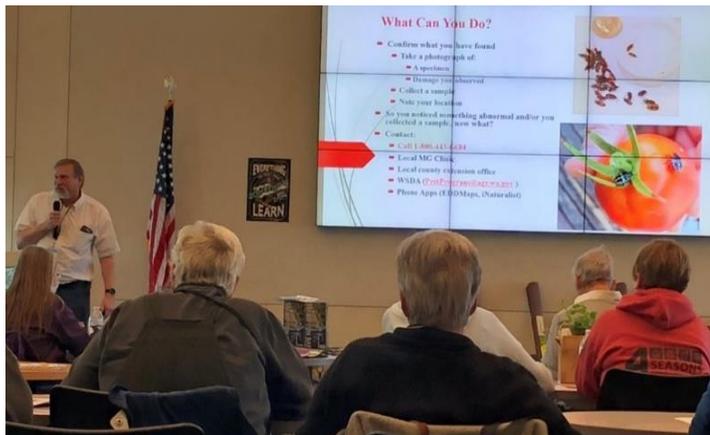
Symposium attendees. Photo credit: D. Escure

Speakers featured at the symposium were:

- **Katie Doonan**, WSU Extension Coordinator at the Center for Sustaining Agriculture and Natural Resources, who discussed potential climate changes impacts on garden planning.
- **Mike Bush**, Entomologist with the Invasive Pest Program at the Washington State Department of Agriculture (WSDA), talked about invasive pests in Washington State. He called on citizen scientists to help locate and notify WSDA of any sightings of lanternfly and apple codling moth, both of which could have devastating impacts on Washington crops.
- **Heather Wendt**, Assistant Manager for Benton-Franklin Conservation District, and **Dinah Rouleau**, Project Manager for the Columbia Basin Conservation District, introduced attendees to the concept of adding drought-tolerant and native plants to their landscapes and creating heritage gardens as an opportunity to use less water in their yards.



Katie Doonan. Photo credit: D. Escure



Mike Bush. Photo credit: Mark Amara



Heather Wendt. Photo credit: Heather Wendt



Dinah Rouleau. Photo credit: Dinah Rouleau

During one of the two session breaks, Master Gardener intern Bobbie Bodenman demonstrated how to create a beautiful flower container using a 'Filler, Spiller, Thriller' concept to add interest by using plants of various heights, mass, and growth structure. During the second break, Dinah Rouleau discussed types of nests that native bees can use and provided instructions on how to assemble bee boxes for them.

During breaks, attendees also visited 12 vendor tables that offered a wide variety of gardening resources and information. Vendors represented Best Test Analytical Labs, BFI Native Seeds, Central Basin Audubon Society, Columbia Basin Conservation District, Natural Resources Conservation Service, Noxious Weed Control Board of Grant County, Pheasants Forever, Washington Native Plant Society, WSDA Plant Protection Division, WSU Bee Research, WSU Grant-Adams Master Gardeners, and the Xerces Society. BFI Native Seeds and the Grant-Adams Master Gardeners brought a variety of plants for sale, and the WSU Bee Research group sold jars of honey and shirts.

This free annual event also featured many donated door prizes and refreshments.



WSU students from the Bee Research Program staffed a vendor table. Photo credit: Sharon Hastings



Master Gardeners (from left to right) Mary Love, Barbara Guillard, Sharon Hastings, Glenn Martin, Kris Nesse, and Pat McAfee. Photo credit: D. Escure



BFI Native Seeds displayed and sold plants adapted to the area. Photo credit: Sharon Hastings

A core group of WSU Grant-Adams Master Gardeners and Columbia Basin Conservation District staff worked cooperatively for eight months to organize the event. Planning for the 2024 Eco-Gardening Symposium will begin in September 2023.

- **Annual Grant-Adams Master Gardener Plant Sale - May 6, 2023**



Plants filled 18 tables separated by type: vegetables, herbs, flowering annuals and perennials. Tomato plants took up one large table. Photo credit: Sharon Hastings

The Grant-Adams Master Gardeners (MGs) held a well-attended and successful plant sale on the opening day of the Moses Lake Farmers Market on the first Saturday in May, with a steady stream of customers. The sale featured hundreds of flowers, herbs, and vegetables that the MGs had grown in a large greenhouse provided by the Quincy School District from late February through April. Veteran and intern MGs spent many hours in the greenhouse both during the week and on weekends planting seeds, transplanting seedlings into larger pots, and continually watering the thriving plants to ensure customers took home quality plants.

In addition, plants were propagated from MGs home gardens for the sale. Our WSU-trained gardeners answered questions and, based on needs, offered recommendations. To further help customers, factsheets with photos for each type of plant were placed on tables providing information about their size, light or shade needs, and other pertinent information.

Our MG group strives to offer a varied selection of plants for purchase each year. The sale included local plant and vegetable favorites in Grant County, such as Celebrity, San Marzano, and Sungold tomatoes, as well as some unusual varieties that are difficult to find in many nurseries, such as Striped German and Tie Dye tomatoes. The sale also offered a variety of other vegetables, herbs, annual ornamentals, locally adapted perennial shrubs, and succulents.



A beautiful hand-made WSU clock was raffled off at the end of the sale. Photo credit: Sharon Hastings



Master Gardeners Marylou Krautscheid, Glenn Martin, and Marta Tredway pause for a moment from answering customer questions. Photo credit: Sharon Hastings



Master Gardeners Mary Love and George Roper offer advice by a table of tomatillos. Photo credit: Sharon Hastings

Proceeds from this year’s plant sale and raffle will go towards supporting the Grant-Adams Master Gardening program efforts which will continue to educate home gardeners through plant clinics, gardening presentations on a wide array of subjects, upkeep of demonstration gardens, and development of horticultural programs for area schools to provide information geared to their needs.

The MGs are grateful to all who supported this year’s plant sale through their purchases and donations of recycled pots.



Thirteen different varieties of tomatoes were offered for sale, including bush, cherry, and paste varieties. Photo credit: Sharon Hastings

Master Gardener of the Year Awarded

Each year the Grant-Adams Master Gardener Foundation honors a Master Gardener for extraordinary contributions to the WSU Master Gardener program. Duane Pitts received the 2022-23 Master Gardener of the Year award. Duane was recognized as an invaluable resource for the MG program during 2022 in a multitude of ways.

The criteria for this award include accomplishments in the following categories:

- Community involvement, educational impact within the program and/or community, promotion of the WSU Master Gardener program and its goals, leadership role, time commitment, and legacy by making a lasting contribution to the program.



Duane Pitts receives his award. Photo credit: Mark Amara

In implementation of WSU MG program goals, Duane excelled in all these categories:

- Assisted with planning, planting, and making plant donations for a series of raised beds for the disabled and elderly through the Grant County Housing Authority.
- Helped orient and train new MG interns, mentoring two of them. In preparation for providing training for the new interns, Duane reviewed and provided revisions to the new MG Intern Handbook. And, he made in-depth presentations to help the new MG interns maneuver through the WSU online course, tracking their progress, encouraging them throughout the process, and helping them understand and use the MG recordkeeping system.
- Contributed six articles of his gardening insights and experiments for the MG quarterly newsletter, GROUNDED.
- Participated as part of a team of MGs, who cleaned, weeded, pruned and spread mulch at least five times during the year at the MG demonstration garden at the Moses Lake Public Library.
- Served at least one week a month as the online MG representative, answering client questions or calls for gardening Q&A to the Grant County Extension Office, and volunteered at plant clinics at seasonal farmers markets in Moses Lake.
- Helped provide strong leadership and guidance to the MG group throughout the year as one of three WSU Grant-Adams Master Gardener Program Co-Coordinator.
- Took on oversight of the Give Pulse tracking system, which has been a challenge for MGs to master, tackled its data reporting issues, and educated the MGs on using the system.
- Contributed to negotiating an MG agreement to use the Quincy School District greenhouse, providing key insights and support for its negotiation reviews and protocols.
- Served as the At-Large Representative on the Master Gardener Foundation board that funds MG program activities in the absence of financial support from WSU.
- Generously shared his bounty of home-canned fruit with the MG group at program and foundation meetings.

Beating Weeds without Herbicides . . . by Mark Amara

Mark Schonbeck, Research Associate of the Organic Farming Research Foundation, recently presented a dynamic interactive lecture on Beating Weeds without Herbicides. The Science and Technology Department of the USDA Natural Resources Conservation Service sponsored this training. The presenter cited numerous examples of university-based research from all over the United States. Though the focus was on soil-friendly organic weed management for farmers, the recommendations, principles, and research results directly apply to home gardeners and small-acreage producers.

Weeds were identified as the organic farmer's dilemma and their number one challenge as they are for home gardeners. The NOP (National Organic Program) requires organic farmers to maintain or improve the physical, chemical and biological condition of their soil and minimize erosion. Some of NOP's goals are preventing crop pests, weeds, and diseases with crop rotation; maintaining fertility; and controlling weeds using a suite of approved options.

These same principles apply to home gardens and encourage the use of pesticide-free approaches to weed management. Weeds are moving targets that demand intensive labor to control, are site specific, and often lead to high-weed-seed populations, but they can be managed. Minimum tillage does build soil health, but the higher weed production that may result can reduce yields. We know that weeds are "pioneers" that provide cover, diversity, and living roots; protect and restore soil after tillage; and absorb excess nutrients. In theory, they are nature's cover crop. However, they also compete with our crops for water, nutrients, light, and space. And, they displace native plants, deplete soil moisture, and disrupt indigenous soil biota.

Schonbeck's presentation highlighted five steps to minimize weeds. These principles can be applied anywhere by anyone who works the soil.

- **Step 1.** Know your worst weeds in the garden, yard or large farm. Identifying weeds that grow onsite should include knowing their growth habits, preferred growing conditions, and impacts on preferred crops (competition, allelopathy, disease host). Also, management treatment options like tillage, cultivation, or reaction to nutrients can/should be considered.
- **Step 2.** Closing the weed niche can be done by planting cover crops. Single stands or mixes are both recommended. Multi-functional mixes combine growth habits and have the added benefit of one or more species that cover the ground quickly. Ideally, cover crops selected should be planted at 1½ to 2 times the recommended rates to ensure rapid growth and canopy closure. There are all kinds of combinations, although planting grains and legumes are definite options. Some other ways to close the weed niche are to strip-till, leaving alleys between rows, intercropping or interplanting, or using straw mulch.
- **Step 3.** Keep the weeds guessing. Having a diverse crop rotation is the key. Rotating crops around the garden can help keep pests confused. Think about deep vs. shallow rooted crops, tall erect and low spreaders, or crops with contrasting nutrient needs. Varying the timing of tillage, planting and harvest, method and depth of tillage, and weed control tactics can help minimize weed pressures. Practice good sanitation: clean tools, weed-free seeds and inputs.
- **Step 4.** Grow crops, not weeds. Feed and water the crops, not the weeds. Healthy soil and good crop management yield vigorous crops with fewer weeds. Using desirable covers or high tunnels can be effective. Tall, vigorous crops are less susceptible to weeds. Crops with thick canopies can suppress later-emerging weeds. Transplanting vigorous starts can give plants up to a six-week head start on weeds. In-row drip irrigation gives lettuce an advantage over between-row weeds. In-row drip lines feed and water tomatoes while leaving between-row weeds dry. The slow-release nutrients in finished compost are less likely to over-stimulate weeds than fresh manure or poultry litter. To keep crops ahead of weeds, avoid over-application of available N, P, and K. Encourage mycorrhizal fungi.
- **Step 5.** Draw down (deplete) the weed seed bank. This can be done with early season cultivation and cutting, manually pulling, tilling or mowing weeds before flower buds open or chopping or removing flowering weeds. Tilling shallowly, broadcasting cover crops, or flaming weeds are possibilities. Later in the season, leave cover crops that winter kill or crop residues until spring to allow ground beetles and other weed seed feeders to help reduce the weed seed bank. Delaying tillage improves soil health and can increase yield of the next crop. Consider avoiding importing new weed seeds from mulch hay, manure, compost or poorly cleaned seeds.

More tips for successful weed control: Cultivate shallowly (<1 inch) when weeds are small. Ideally, this should be done during the crops' critical weed-free period in the first 4-8 weeks. Alternatives to cultivation include mowing; flame weeding or using electrical zappers; directed hot water or steam; mulching with landscape fabric, plastic or weed mats; tarping; grazing; or using NOP-approved herbicides (vinegar, fatty acids or essential oils).

Among the emerging technologies cited as options for weed control were using selective cutting tools to remove weeds from standing crops before they set seed, electrical weed control for grains and tree crops, and NOP-allowed herbicides. Biobased and biodegradable film and hydro-mulches are still in development.

Knowing and Testing Soils Helps Determine Nutrient Needs . . . By Mark Amara

Soil scientists from the USDA Natural Resources Conservation Service (NRCS), formerly known as the Soil Conservation Service, have or are completing soil surveys on just about every county in the United States. These survey documents are accurate to a few acres to tens of acres or more, depending on the intensity of use.



Photo credit: Mark Amara

For example, soils in Grant and Adams Counties, Washington, were mapped using standardized, nationally recognized principles and were cooperative efforts supported by Washington State University and the Agricultural Research Service. Locally, these counties were thoroughly mapped in the 1960s-1980s. Hard copies of the respective publications, which include detailed maps, soil descriptions and interpretations on use and management, are available. Beginning in the 1990s, the information has been digitized, with updates provided online, and are readily available through web soil survey:

<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>

As a retired USDA NRCS Soil Scientist who helped map the soils published in the Soil Survey of Grant County, Washington, I often bring up soil characteristics and interpretations when working with the public because I believe it is the foundation of everything we grow. I continue to promote soils principles and make soils recommendations as a WSU Extension Master Gardener. However, any WSU Extension Master Gardener can train individuals to access the web-based process for detailed maps and provide soils information on specific properties.

Even if you don't know your soil type, wherever gardening, landscaping or yard maintenance is done, you might want to know what, how much, and when to treat the soil to avoid over applying fertilizer and minimize leaching and runoff. Before applying whatever is available from local commercial businesses, soil testing is a quick and easy way to assess soil needs. Taking a soil test about once every three to five years prior to planting in the spring or fall is an accurate way to learn about what fertilizers are needed and what/how much amendments should be added. Once baseline information is known, the gardener should have a better idea about what annual applications may be necessary. The types of laboratory tests that are run on a standard sample include organic matter, pH (acidity or alkalinity), nitrogen, phosphorus, potassium, sulfur, and micronutrients like calcium, boron, magnesium, zinc, iron, manganese, and sodium. There are several soil testing firms throughout Washington but using local sources is probably most practical for home gardeners in Grant and Adams Counties.

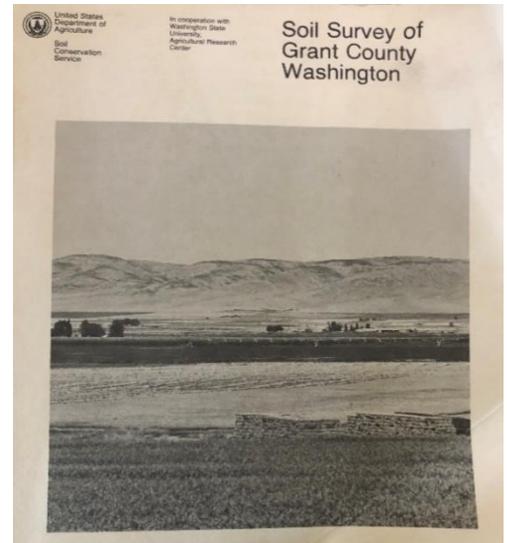


Photo credit: Mark Amara

Testing firms that analyze the samples provide sample bags with instructions for collecting soils and can be picked up ahead of time. Ideally, samples should be taken from the field or area being planted. Avoid lanes or paths between beds, unless those areas are planted; edges; wet or areas previously used for confining animals (like for chickens, horses, or cows or other livestock); compost heaps; or manure piles. Try to sample areas that are representative of the entire planting area. Typically, samples are taken from the 0-12 inches zone from several areas in the yard or garden or deeper, depending on the rooting depths of preferred crops, although sampling deeper is also a possibility. Sample using clean shovels, trowels or augers and thoroughly mix soil in a clean bucket. Soil collected for testing should be devoid of undecomposed organic matter (manure, leaves, or grass) and rock (of any size) that can contaminate a sample and should be collected in sufficient quantity to fill the sample bag. Filling out the appropriate paperwork at the soil testing firm is needed to determine costs.

Typically, the soils in Grant and Adams Counties test low for nitrogen and sulfur, both of which are soluble in water. This means that these nutrients can leach away rather quickly with typical watering practices (and even more quickly with overwatering). Some of the trace elements (micronutrients) like boron, zinc, and copper are important to crop health on a commercial scale but may not be reflected as much in home gardens. Many of our soils are on the alkaline side of the pH scale. If pH gets much above 8, gardeners should consider amending their soil (with sulfur) to bring the pH closer to 7, which is considered neutral. High (above 8) or low pH (below 5) can tie up nutrients, making them unavailable to plants, so it is important to monitor and find ways to maintain or improve conditions often. Our soils are typically low in organic matter. In the native condition, soil organic matter is at 1% or less. Ideally, the higher the organic matter (2-4%), the more healthy and productive soils can become.

Improving soils constantly with copious organic matter additions annually is recommended by incorporating crop residues, adding straw or alfalfa or other untreated materials like leaves and (pesticide-free) grass clippings, or planting cover or green manure crops. Adding manures of one kind or another over time should be watched as they can accumulate nutrients to excessive levels. Moderate diverse applications are recommended. For example, when cow manure is added year after year to build organic matter, phosphorous, which is one of its components, can reach levels that may be too high for many crops to endure. Then, it may be necessary to find ways to ameliorate these conditions, like growing crops that help utilize the nutrients and help moderate its levels, or avoiding fertilizers with phosphorus. Similarly, growing crops on high pH soils can be done without amending it if you know what will tolerate a higher pH. More people are planting blueberries in eastern Washington. For that crop, soils must be amended to bring the pH down into the acidic range because the plants will not produce well otherwise.

There are several soil testing labs in our area. WSU Extension Master Gardeners do not recommend one over another, and it is up to the gardener to check them out and determine which one works best for their needs. Some of the soil testing labs close to us include:

Soil Test Farm Consultants, Inc.

2925 Driggs Drive W
Moses Lake, WA 98837
(509) 765-1622

www.soiltestlab.com

Kuo Testing Labs Inc

337 S 1st Ave
Othello, WA 99344
(509) 488-0112

www.kuotesting.com

USAG Analytical Laboratories

1320 E. Spokane St.
Pasco, WA 99301
(800) 244-0573

<https://emswcd.org/tools/conservation-directory/2411/usag-analytical-services-inc/>

Best-Test Analytical Services LLC

3394 Bell Road NE
Moses Lake, WA 98837
(509) 766-7701

besttest@scml.us or
www.besttestlabs.com

Cascade Analytical Environmental Agricultural Laboratory

3019 G. S. Center Road
Wenatchee, WA 98801
(509) 662-1888

info@cascadeanalytical.com

Analytical Sciences Laboratory

University of Idaho
Holm Research Center
PO Box 442203
Moscow, ID 83844
(208) 885-7081

<https://www.uidaho.edu/cals/analytical-sciences-laboratory>

For more information:

Cogger, Craig, Home Gardener's Guide to Soils and Fertilizers. Washington State University. 2005.
<http://cru.cahe.wsu.edu/CEPublications/eb1971e/eb1971e.pdf>

Washington State University Extension web site: Organic Farming Systems and Nutrient Management. Soils and Soil Testing. 2013. <http://www.puyallup.wsu.edu/soilmgmt/Soils.htm>.

Washington State University Extension: Soil Testing for Home Gardeners, Whatcom County Extension. No Date. <http://cru.cahe.wsu.edu/CEPublications/eb648/eb0648.pdf>

Soil Testing and Soil Improvement. <http://county.wsu.edu/king/gardening/mg/factsheets/Fact%20Sheets/Soil%20Testing%20and%20Soil%20Improvement.pdf>.

Master Gardener Plant Clinic Schedule

WSU Master Gardener volunteers are available to address your home gardening questions online year-round: 365/24/7. Contact a WSU MG volunteer with your home gardening questions at ga.mgvolunteers@wsu.edu.

You may also call (509) 754-2011, Ext. 4313, or bring your questions/drop off samples to the WSU Grant Extension office at 1525 E. Wheeler Road, Moses Lake, Monday-Friday from 8 am to 5 pm. For in-person contact, or if you have a plant or insect sample that you like to have identified, please see the MG volunteers at one of the following locations:

- B Street SE Market, Quincy, first Saturday of the month, 9 AM - 1 PM, June through September
- Moses Lake Farmers Market, Saturdays from 8 AM - 1 PM, McCosh Park, Moses Lake, May through October

Grant-Adams Counties Foundation Officers:

Glenn Martin, President, 509-699-8466
 Barbara Guiland, Vice President, 509-765-3912
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