



WASHINGTON STATE UNIVERSITY
EXTENSION



WSU Extension Master Gardener Program

2023 IMPACT REPORT

Cultivating plants, people, and communities since 1973





2023 marked 50 years of the Extension Master Gardener Program worldwide. Extension Master Gardeners have been delivering research-based horticulture and environmental stewardship education for half a century. It is our hope that everyone involved, past, present, and future, feels honored and excited for all that our program was, is, and will become.

We've been here for 50 years, and we say "50 years and counting" because we are committed to learning and evolving to meet community needs, ensuring that we remain current, relevant, and resilient. In 2023, we looked back over all that has been taught, learned, and improved in horticulture, sustainable gardening, and

environmental stewardship in the last 50 years, and looked forward to opportunities that lie ahead. Together, we will shape what the Extension Master Gardener Program will be for future generations.

In 2022, volunteers and other internal and external stakeholders from around the nation and in Washington were asked to envision our future. Two themes surfaced that will lead our path forward.

Diversity, equity, and inclusion are key to continued resiliency. With science-based, sustainable horticulture education as our core tenet, we will become a more diverse program serving increasingly diverse audiences. We will learn and work to become more diverse by improving our technical savvy and ensuring our educational offerings are more accessible.

We will learn and work to become more diverse by understanding our differences. We will lean into the land-grant purpose of education for all and into living our program's value that it is our differences, just like in a biodiverse ecosystem, that make

us resilient and healthy.

The second theme harkens back to the original reason why our program started in the first place. In 1973, people wanted to learn about how to garden, but there was limited understanding about how gardens and gardening affect pollinators, soil, water, and plant biodiversity. At that time, there was not an appreciation for sustainability or for environmental stewardship. Slowly, we began to understand ecosystem functioning, and in turn, Extension Master Gardeners learned about sustainable gardening practices and taught their communities to protect our natural resources.

Today, because of what we have learned over the last 50 years, people want to understand how the choices they make in their gardens impact the ecosystem, the climate, and human health and wellness. To that end, volunteers are committed to the newly adopted WSU Extension Master Gardener Program Priorities. They are critical issues facing Washington communities at various levels and degrees.

We have big goals and a lot of work in front of us. I am confident that we will be successful in achieving our goals because of volunteers like each of you, and because the leadership at WSU believes in the Extension Master Gardener Program to grow resilient communities. Thank you for your dedication and hard work. Here's to the next 50 years and beyond!

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CONTENTS

WHO WE ARE4

OUR VISION.....6

OUR MISSION.....6

OUR VALUES.....6

RESILIENT WASHINGTON.....7

OUR PROGRAMS9

OUR PRIORITIES10

2023 BY THE NUMBERS.....12

 LOCAL FOOD14

 SOIL HEALTH16

 POLLINATOR HEALTH.....18

 WATER CONSERVATION20

 CLEAN WATER22

 CLIMATE CHANGE24

 PLANT BIODIVERSITY26

 WILDFIRE PREPAREDNESS.....28

 NEARBY NATURE30

 ADVANCED EDUCATION32

 PROGRAM FUNDING34



<http://mastergardener.wsu.edu>

As a [Land Grant University](#), Washington State University (WSU) has responsibilities to teach, research, and extend knowledge to all people. The Extension Master Gardener Program, launched in 1973 by WSU, is one way that land-grant universities fulfill those purposes. The success of the WSU Extension Master Gardener Program has led to the replication of the program across the United States and internationally with over 100,000 master gardeners serving their communities.

WHO WE ARE

We are community educators.

We are your neighbors and members of your communities.

Our Programs and Priorities inform our efforts to shape healthy communities and a healthy planet.

We are actively engaged in teaching research-based gardening and environmental stewardship practices.



OUR VISION

Highly recognized, diverse, and fully supported, WSU Master Gardener volunteers are the go-to resource for communities seeking research-based, innovative solutions for their ever-changing horticulture and environmental stewardship needs.



OUR MISSION



Engaging university-trained volunteers to empower and sustain diverse

communities with relevant, unbiased, research-based horticulture and environmental stewardship education.

OUR VALUES

We value personal and professional research and discovery because it encourages us to stay current about horticulture and environmental stewardship to meet the unique educational needs of our communities.

We foster and benefit from an atmosphere of diversity and inclusivity because our

differences inspire creative thinking and innovative solutions.

We act with integrity because trust, truthfulness and respect create a healthy and positive culture.

We are committed to stewardship and sustainability, serving as ethical and responsible agents of our natural resources, human resources, and University resources.

We collaborate because together we empower healthy and resilient communities.

We are a dynamic and responsive program where knowledge inspires change.



RESILIENT WASHINGTON

The WSU Extension Master Gardener Program supports the mission of Washington State University's College of Agricultural, Human, and Natural Resource Sciences in fostering a more [resilient Washington](#).





OUR PROGRAMS

ASK A MASTER GARDENER

Have a gardening question? Ask a Master Gardener at one of our in-person or on-line plant and insect diagnostic clinics.

From our beginning, Master Gardeners have provided free access to unbiased research-based horticulture advice to help people find answers to their gardening questions. Clinics are located at farmers markets, hardware stores, nurseries, demonstration gardens and Extension offices throughout the state of Washington. You can also find us online.

DEMONSTRATION GARDENS

Want to see sustainable gardening in action? Stop by one of our gardens. These outdoor classrooms give gardeners the opportunity to see and practice sustainable gardening techniques. Master Gardeners demonstrate via classes, workshops, and field days a range of gardening practices including water wise gardens, native plant gardens, English knot gardens, raised bed vegetable gardening, composting, container gardening, espaliered apples, berry beds and more.

COMMUNITY GARDENS

Interested in helping put food on the table? Community Gardens inspire people to come together to grow their own food. WSU Master Gardeners are active in

numerous community gardens and teach tips and techniques for increasing production and for handling pesky problems. Community Gardens provide ready access to healthy food and address food insecurity throughout the state.

YOUTH GARDENING

Are you a teacher who wants to get your students in the garden? The gardeners of tomorrow start building their passion today! Several counties have youth gardening programs where kids can experience the joy of gardening. The goal is to build knowledge, but especially to inspire a passion for gardening that lasts a lifetime.

SPEAKERS BUREAU

Does your organization need a speaker? WSU Master Gardeners do presentations on a variety of gardening topics as part of their mission to empower and sustain diverse communities with relevant, unbiased research-based yard and garden information. Contact your local county to request a speaker qualified to talk to your garden club, service club or classroom about anything gardening related, from growing veggies to soil health to attracting pollinators, or something specifically to address your group's needs.

PLANT SALES

Looking for plants well-suited for your particular location? Our plant sales have become important events in our communities. People come looking for unique varieties of vegetable starts and perennials that are well-suited for local climates and soils and for advice from WSU Extension Master Gardeners about how to best care for their new plants. Plant sale goers know that they will get high quality plants and veggie starts at a reasonable price.

We generally hold plant sales in the spring, near Mother's Day and some counties also hold Plant Sales in the fall. Our plant sales, often hosted by our Master Gardener Foundation partners, are an important tool for us to defray the cost of running many of our free programs.



OUR PRIORITIES



We teach ways to create resilient landscapes that are adapted to our changing climate.



We teach integrated pest management to minimize polluted runoff.



We teach water-wise gardening and landscaping practices to conserve water.



We encourage building healthy soils to prevent depletion and ensure the long-term viability of local food security & natural resources.



We teach ways to help native bees and other pollinators thrive in home and community landscapes.



We teach sustainable techniques to growing local food to improve individual & community health and wellness.



We teach stewardship of diverse ecosystems through invasive species management, native species conservation and restoration in landscapes.



We seek to increase access to plants, green spaces, and public landscapes to benefit the health & well-being of all members of our communities.



We teach landscaping principles to reduce the risk of loss due to wildfire.

OUR PRIORITIES INFORM OUR EFFORTS

The WSU Master Gardener Program addresses important sociologic and environmental issues by teaching research-based horticulture information. We want people to have important skills and abilities that help mitigate challenges and to understand that everyone has a role to play in creating and sustaining healthy and resilient communities.



2023 BY THE NUMBERS

- ❁ 3,357 Certified volunteers.
- ❁ 616 new volunteers trained.
- ❁ Volunteers gave 301,100 hours of their time to WSU and the communities served.
- ❁ Volunteers earned 39,422 hours of continuing education.
- ❁ 5,029 plant clinics offered across the state answered 38,482 questions.
- ❁ 8,248 residents learned about soil health.
- ❁ 7,071 residents learned about pollinators.
- ❁ 29,042 residents learned about vegetable gardening.
- ❁ 6,770 residents learned about water conservation and water quality.
- ❁ 7,310 residents learned about ecosystem biodiversity.
- ❁ 3,615 residents learned about climate change.
- ❁ 11,516 residents learned about the health benefits of being in and around plants and nature.
- ❁ 528 residents learned about wildfire preparedness.



Local Food

ISSUE

- Between 27% and 49% or up to 1.5M of Washington households experienced food insecurity in 2020-2023. [WAFOOD Brief 14](#)
- Food insecurity disproportionately impacts traditionally marginalized audiences, households with children, and impoverished households putting them at greater risk for:
 - ➔ Decreased academic success
 - ➔ Chronic physical health conditions like diabetes and obesity.
 - ➔ Mental health disorders

CONSEQUENCES

- Food insecurity causes an economic and mental health burden across Washington and the United States costing the US healthcare system nearly \$481 billion annually.
- Obesity costs the Washington state healthcare system \$2 billion per year. (CDC)
- Diabetes costs the Washington State healthcare system \$6.7 billion per year (WA DOH)
- Mental health care costs are estimated to be \$708 million annually. (JAMA)
- Decreased academic outcomes and reduced ability to achieve educational success.



OUTREACH

- 939 classes, workshops, demonstrations, and field days.
- 9,266 questions answered on growing food in plant clinics.
- Podcasts, newsletters, tip sheets.
- Food demonstration gardens.
- Community P-Patch style gardens.
- Partnerships with SNAP-Ed, 4-H, Veterans Affairs, immigrant and low-income communities, and correctional facilities.

REPORTED IMPACTS

- 24% knowledge increase in selecting appropriate varieties to grow.
- 27% knowledge increase on growing appropriate varieties.
- 18% knowledge increase on the connection between food access and health and wellness.
- 25% knowledge increase on how to support food security.

PUBLIC VALUE

The WSU Extension Master Gardener Program improves food access and individual and community health and wellness for a resilient Washington.



The Extension Master Gardener Program in Washington State directly impacted food growing and security practices among 29,042 individuals. This led to increased engagement of community members in growing food and donating produce to local food banks and pantries. The program donated 96,800 pounds of produce and 5,000 vegetable seedlings, valued at \$135,000. This made nutrient-dense foods easily accessible locally, feeding 160 households for a year.



as a foundation for families to cultivate their own produce.

Additionally, Master Gardeners extend their outreach by partnering with the Tri Cities Union Gospel Mission. Together, they offer free seed starting classes specifically tailored for unhoused women and children. These classes empower participants with the knowledge and skills needed to begin their own gardens.

including a local seed swap, the county's Conservation Fair, and a garden tour that emphasized water conservation techniques like drip irrigation, permaculture, and adding organic matter to soil. They also contributed monthly articles to the local newspaper and launched a Ferry County Master Gardener Facebook page to share valuable gardening information, reaching over 300 local people with some posts.

DOING OUR PART

WSU Extension Master Gardeners Benton/Franklin Counties play a crucial role in mentoring local residents on sustainable home gardening. Their services are provided at no cost, helping families learn how to grow food at home in a sustainable and affordable manner. To address food insecurity, they collaborate with Habitat for Humanity to install raised garden beds in low-income areas. These beds serve

Furthermore, Master Gardeners engage with head start schools, where they conduct container gardening workshops. Families attending these workshops leave with potted tomato or pepper plants, each thriving in a 5-gallon container. Their efforts contribute significantly to community well-being and food security.

WSU Extension Ferry County Master Gardeners engaged in various community activities,

Through these efforts, the Master Gardeners educated the community on the benefits of growing their own food, such as enhancing food security, providing fresh and healthy food for families, and ensuring food availability during transportation disruptions.



Soil Health

ISSUE

Soil, teeming with life, provides essential services like food, shelter, and water. It filters water, supports plant growth, offers habitat for organisms, and supplies antibiotics. Humans rely on soil for waste management, water filtration, and as a foundation for infrastructure. Soil is the basis for agroecosystems that produce feed, fiber, food, and fuel. However, deforestation, compaction, and erosion degrade soil health. Washington State University identifies key soil health challenges in Washington, including compaction, erosion, nutrient imbalances, acidification, pests, pathogens, salinity, and sodicity.

CONSEQUENCES

Neglecting soil health can lead to several serious consequences:

- **Reduced Crop Yields:** Poor soil health diminishes its ability to support plant growth, leading to lower agricultural productivity.
- **Loss of Biodiversity:** Degraded soil cannot support the diverse organisms that contribute to a balanced ecosystem.
- **Increased Erosion:** Without healthy soil structure, erosion becomes more prevalent, leading to the loss of fertile topsoil and decreased water quality.

- **Water Quality Issues:** Eroded soil can carry pollutants into waterways, degrading water quality and harming aquatic life.
- **Climate Change Acceleration:** Degraded soils release stored carbon into the atmosphere, contributing to greenhouse gas emissions.
- **Economic Impact:** Reduced agricultural productivity and increased need for soil restoration can lead to higher costs for farmers and communities.
- **By prioritizing soil health,** we can avoid these negative outcomes and ensure a sustainable future.

OUTREACH

- 280 classes, workshops, demonstrations, and field days.
- 4,653 questions answered on soil health in plant clinics.
- Podcasts, newsletters, tip sheets.
- Healthy soil practices such as composting at demonstration gardens.
- Partnerships with SNAP-Ed, 4-H, Veterans Affairs, immigrant and low-income communities, and correctional facilities.



REPORTED IMPACTS

- Participants report knowledge increase in the role of soil and the ecosystem services it provides.
- 34% knowledge increase about how home composting helps to reduce methane gas in landfills.
- Participants report knowledge increase recognizing basic soil properties including physical, chemical, & biological, and their impact on the home landscape.
- Participants report knowledge increase of threats to soil, and the need for conservation (pollution, erosion, overuse, etc.)



PUBLIC VALUE

The WSU Extension Master Gardener Program plays a vital role in our communities. Through its educational efforts, it empowers individuals and fosters a resilient environment.



By emphasizing research-based practices for maintaining healthy soil, such as using adequate plant residue and living plants, the program effectively reduces erosion and preserves soil productivity. This commitment to sustainable development benefits both human well-being and the broader ecosystem.

DOING OUR PART

In 2023, **WSU Extension Mason County Master Gardeners** educated 601 youth and adults about soil health through workshops hosted at demonstration gardens and school gardens.

Additionally, over 10% of plant clinic questions were related to soil health.

In order to ensure that education about soil health is delivered to as many Mason County residents as possible, Extension Master



Gardeners also emphasized the importance of soil health in all of their sustainable vegetable gardening presentations.

Because of this, an additional 171 adults and 593 youth were introduced to key soil health concepts in 2023.

The **WSU Extension Chelan/Douglas County** Master Gardeners conducted several youth classes on vermicomposting.

In one instance they taught a class for 163 eighth graders in the Wenatchee School District, divided into groups of 16 or fewer over three days.

Students were given five true or false questions before and after the class. Their knowledge on the subject significantly improved, with correct answers increasing from 7% before the class to 91% after. Key takeaways included techniques for preserving soil and improving



soil health in home landscapes, understanding that vermicompost consists of worm castings and is more beneficial than regular compost, and learning that worms can be farmed indoors or in warm temperatures to produce vermicompost.

Although most eighth graders do not have their own gardens, they showed interest in the indoor vermicomposting system. Several expressed a desire to start a worm bin at their school, and many appreciated learning more about worms. The students thanked the presenters, and it is hoped that the information will be useful to them in the future.

Pollinator Health

ISSUE

While the decline of European honeybees and Colony Collapse Disorder have received significant attention, our native bees have also faced a dramatic population decline. A recent study by [Dr. Robbin Thorp and the Xerces Society](#) revealed that two of nearly 50 bee species native to North America are at risk of extinction.

Bees, which pollinate about 90% of wild plants, are facing alarming trends. According to the [Center for Biological Diversity](#), over half of native bee species are declining, nearly one in four is at risk, and 40% of insect pollinators are under significant threat.

other pollinators in home and community landscapes, promoting both a stable food supply and a diverse ecosystem.

1,108 adults and 455 youth were educated on the critical role of pollination in securing a stable food supply and fostering a biodiverse ecosystem.



CONSEQUENCES

Pollination is a crucial ecological process necessary for survival. Approximately 80% of food-producing plants depend on animal pollination, mainly by bees. Astonishingly, one in every four bites of food we eat relies on a pollinator. The worldwide decline in insect pollinators poses a serious threat to food security. Beyond providing food, pollination is vital for the reproduction of flowering plants, which helps prevent erosion, filter water, sequester carbon, and produce oxygen.

WSU Extension Master Gardener volunteers educate on ways to support native bees and

OUTREACH

Extension Master Gardener volunteers answered 2,743 questions about pollinator health and habitat from gardeners at *Ask a Master Gardener* plant clinics.

- A total of 153 classes explored the importance of pollinator diversity, discussing the effects of human activities such as pesticide use, habitat destruction, air and light pollution, and invasive species on pollinator health.
- 31 demonstrations highlighted strategies for promoting pollinator conservation, including creating habitats for



native pollinators, choosing pesticide alternatives, using pesticides in pollinator-safe ways, and replacing lawns with pollinator-friendly landscaping plants.

- In 49 hands-on workshops, participants actively created habitats for pollinators and learned how to clean solitary bee nests.
- 42 field days gave participants the chance to see principles of pollinator health and habitat conservation in action.

REPORTED IMPACTS

- Participants report knowledge increase of the role of pollinators in ecosystems as well as food production.
- 43% increased understanding of the importance of pollinator diversity and different plant-animal relationships with regard to resilience.
- Participants report knowledge increase of ways in which human activities can negatively impact pollinators.
- Participants report knowledge increase of steps individuals can take to protect pollinators.

PUBLIC VALUE

The WSU Extension Master Gardener Program’s educational initiatives significantly enhance understanding of how to protect pollinators.



When communities learn how to protect pollinators, it enhances food security by ensuring stable crop production, supports environmental health through biodiversity and ecosystem services like erosion control and water filtration, and fosters community engagement and collaboration. This education also promotes sustainable practices, boosts local economies by supporting agriculture, and increases scientific literacy and environmental stewardship, leading to more informed and responsible decisions that benefit both people and the planet.

DOING OUR PART

The **WSU Extension Grays Harbor/Pacific County Master Gardeners** visited an independent living center to engage residents in gardening activities they could implement at their residence. During one visit, a Master Gardener discussed Pacific Northwest plants and pollinators, sparking interest in ways to attract and protect pollinators. The residents matched various seeds with photos and selected a few to plant. Questions about pollinator-friendly plants for their courtyard garden, including native flowers, were answered, with a particular interest in monarch butterflies and their diet.



After learning about pollinators, several seniors inquired about monarch butterflies and milkweed leaves. The Master Gardeners conducted further

research and returned to share their findings. As a result, the seniors decided to add milkweed plants to their garden to attract monarch butterflies, recognizing the plant’s critical role in the survival of these butterflies.

The **WSU Extension Chelan/Douglas County Master Gardeners** conducted a class on solitary bees, starting with a discussion on the importance of harvesting solitary bees from man-made bee houses. They covered how to harvest cocoons from various nesting materials, highlighted interesting discoveries during harvesting, and provided an overview of winter storage for different types of solitary bees.

The class included a hands-on workshop where participants sorted through tubes, separating those containing cocoons or larvae from empty ones. They opened occupied reeds and cardboard tubes, revealing



contents capped with mud, leaves, resin, and chewed leaves, sometimes mixed with woody debris and

plant material. Inside, they found various cocoons and larvae of different sizes and colors. Throughout the process, they monitored for pests and diseases such as chalkbrood, pollen mites, and Houdini fly larvae, with chalcid wasps being the most common pest. These parasitic wasps lay eggs within bee cocoons and are harmful to solitary bees. The cocoons were cleaned, and the final step involved storing the bees properly over winter to ensure they could be released back into the garden to pollinate and continue the cycle for the next generation of bees.

Water Conservation

ISSUE

Water is a finite resource, and clean, drinkable water is especially precious. With increasingly erratic and drier weather patterns, it's crucial to consider potential droughts and water shortages. Home landscapes can significantly increase water consumption, potentially tripling the average homeowner's usage during the growing season. The EPA estimates that residential outdoor water use across the U.S. accounts for nearly 8 billion gallons of water daily, primarily for landscape irrigation. Implementing water-conserving design principles and efficient irrigation systems is essential for effective water conservation.

CONSEQUENCES

Overusing water can lead to several significant consequences. Environmental impact is one of the primary concerns, as excessive water use can deplete natural water sources, harm ecosystems, and reduce biodiversity. Economic costs also rise due to the increased need for water treatment and infrastructure maintenance. Additionally, agricultural productivity may suffer, as water scarcity can lead to reduced crop yields and increased food prices. Finally, social implications include potential conflicts over water resources and the displacement of communities due to water

shortages. Addressing these issues requires sustainable water management practices and conservation efforts.

OUTREACH

- 2,947 adults and 715 youth learned that water is a finite resource that needs conserving for the benefits of people, agriculture and the environment.
- Extension Master Gardener volunteers answered 3,138 water conservation questions from gardeners who attended *Ask a Master Gardener* plant clinics.
- 93 classes on water conservation and strategies for saving water in the home landscape were taught.
- 21 demonstrations were held to show attendees strategies for saving water in the home landscape.
- 18 hands-on workshops were held where attendees practiced water conserving gardening and irrigation principles.
- 25 field days allowed participants to see water conserving principles at work.
- 75 demonstration gardens showcasing waterwise gardening practices.



REPORTED IMPACTS

Of those surveyed:

- 39% adapted their home landscape to local conditions to conserve water.
- 42% reported beginning or increasing the use of organic mulches to conserve water.
- 45% reported maintaining turf grass only where practical or needed.



PUBLIC VALUE

WSU Extension Master Gardeners improve water conservation efforts among gardeners by teaching practical methods to save water.



By learning universal principles for water conservation, individuals are empowered to adopt sustainable practices that contribute to the preservation of water resources, ensuring environmental sustainability and resilience for future generations.

DOING OUR PART

The **WSU Extension Yakima County Master Gardener Program's** demonstration gardens, including one at Ahtanum Youth Park, faced irrigation challenges due to their desert location and outdated system. To address this, a team of volunteers converted three beds to native plantings, collaborating with the Heritage Garden Program (HGP). Over

18 months, two beds were certified as Heritage Gardens, showcasing water-efficient gardening.

Visitors can now see native plants with tags and signs provided by HGP. Master Gardeners learned about native plants' growth patterns and companion planting, adjusting plant placements to optimize growth. Two beds are now in their third year, demonstrating successful adaptation to desert conditions.



incorporating them into Master Gardener training. By 2021, they partnered with SpokaneScape employees to offer classes at city libraries, and in 2023, they recruited additional green industry partners and expanded classes to county libraries. In total, 553 residents attended 16 classes across seven locations. Additionally, in 2021, EMGs and SpokaneScape staff designed and built a WaterWise Demonstration and Research Garden at the Spokane County WSU Extension office, transforming a neglected area into a site for tours and hands-on demonstrations. In 2023, 49 volunteers contributed 330 hours of labor, valued at \$10,494, to maintain the garden and conduct mulch performance research.

The **WSU Extension Spokane County Master Gardener** volunteers have collaborated with the City of Spokane Water Stewardship program (SpokaneScape) since 2018 to educate residents on reducing water usage in their landscapes. Although the partnership paused during the COVID-19 pandemic, it has since expanded its outreach.

Volunteers began teaching WaterWise and SpokaneScape landscaping classes in 2018,

Clean Water

ISSUE

Clean water is vital for our health, communities, and economy. Protecting clean water upstream is essential for the well-being of downstream communities. About 117 million Americans, or one in three people, depend on drinking water from streams that were vulnerable to pollution before the Clean Water Rule. How we care for plants and manage soil in our gardens and landscapes can affect water quality. Excess pesticides and fertilizers can run off or seep into surface and groundwater, impacting overall water quality.

CONSEQUENCES

Failing to maintain clean water upstream can have significant and far-reaching consequences. Contaminated water poses serious health risks, including infectious diseases, chemical poisoning, and developmental problems. Environmental damage is another major concern, as pollutants can harm aquatic ecosystems, killing fish and other wildlife, and disrupting the balance of natural habitats. Economically, the costs of cleaning up polluted water sources are high, and industries such as fishing, tourism, and agriculture can suffer substantial losses. Communities relying on polluted water sources may face water scarcity, reduced quality of life, and increased healthcare

costs. Additionally, persistent pollution can lead to long-term damage to ecosystems, affecting biodiversity and the overall health of the environment. By managing our gardens and landscapes responsibly, we can help mitigate these risks and protect our water resources for future generations.

OUTREACH

WSU Extension Master Gardener volunteers educate the community on integrated pest management to prevent harmful chemicals from entering our water systems and maintain clean water by preventing soil erosion and runoff.

- Responded to 3,353 public inquiries regarding the least toxic methods for controlling pests in Plant and Insect Clinics.
- Conducted 47 adult classes and 19 youth classes on pesticide use, safety, and integrated pest management.
- Organized 12 demonstrations for adults and youth, showcasing integrated pest management practices for pest control.
- Facilitated 10 workshops for adults and youth, focusing on integrated pest management practices for effective pest control in the landscape.



- Hosted 18 field days for both adults and youth, providing immersive experience with integrated pest management practices for landscape pest control.
- Educated 2,947 adults and 258 youth on the significance of clean water and how gardening choices impact water resources.

Participants gained knowledge in applying fertilizers at recommended rates and times, identifying pests and diseases, minimizing or avoiding chemical use, and preventing soil erosion.

REPORTED IMPACTS

Of those surveyed:

- 29% reported starting or increasing their use of slow-release or organic fertilizers in place of quick-release fertilizers. Quick release fertilizers are more likely to run-off into surface water.
- 35% reported they had begun or increased “using all pesticides according to the label.”
- 48% reported they had begun or increased using pesticide alternatives when feasible.

PUBLIC VALUE

WSU Extension Master Gardeners protect our water quality by teaching the community eco-friendly methods for managing landscape pests, ensuring a healthier environment for all.



Reducing harmful chemicals in the environment offers numerous benefits. It protects local ecosystems and enhances public health by minimizing exposure to toxic substances. This leads to improved water quality, providing cleaner drinking water and healthier aquatic environments. Additionally, these practices can lower costs for water treatment and healthcare. Engaging communities in environmental stewardship fosters a sense of responsibility and connection to their local environment.

DOING OUR PART

The **WSU Extension Snohomish County Master Gardener** volunteers are dedicated to reducing water pollution from home landscapes. They educate the public on the proper disposal of unused pesticides, fertilizers, and other landscape chemicals at local government-operated Household Hazardous Waste



(HHW) disposal sites. Every Master Gardener Basic Training class includes training on how to share this information with the public.

Master Gardener Interns receive an HHW kit to use at plant clinics for HHW outreach. Each kit contains rack cards, drop-off location information, and talking points to help facilitate conversations with clients. They learn to teach clients how to properly identify and dispose of HHW, including household cleaners and garden chemicals, to keep these chemicals out of our waterways and landfills, thereby protecting water quality.

In addition to clinics, **WSU Extension Spokane County Master Gardener** volunteers also hosted 20 classes and outreach events in 2023 that addressed water quality. These were attended by a total of 770 residents. Classes were provided on multiple topics,



but featured common elements related to clean water, primarily integrated pest management. Class attendees learned about alternatives to pesticides, such as mulching to prevent weed growth or pruning to remove diseased plant material. Other classes demonstrated the value of soil testing so homeowners can avoid applying excess fertilizer, thereby reducing potential runoff, or leaching into ground water.

Climate Change



ISSUE

Our changing climate, characterized by warmer winters, hotter summers, and extreme weather events like flooding and droughts, significantly impacts plant growth and the organisms that interact with plants, such as insects, pollinators, diseases, and microbes. Home gardeners play a crucial role in addressing climate change and fostering resilience.

CONSEQUENCES

Failing to practice sustainable gardening can have several negative consequences on climate change and the environment. Using gas-powered tools and synthetic fertilizers increases greenhouse gas emissions, contributing to global warming. Traditional gardening methods often waste water, exacerbating water scarcity issues. Unsustainable practices can lead to soil erosion and loss of soil fertility, making it harder to grow plants and increasing the risk of desertification. Additionally, choosing non-native or non-climate-appropriate plants can reduce biodiversity, affecting local ecosystems and the resilience of landscapes. Without on-site composting, more organic waste ends up in landfills, producing methane, a potent greenhouse gas. By not adopting sustainable gardening practices, we miss

the opportunity to mitigate these impacts and contribute positively to the environment.

OUTREACH

The Master Gardener program is dedicated to educating and empowering communities to create resilient landscapes that adapt to and mitigate the effects of climate change. Key achievements include promoting fire-resilient landscapes, encouraging sustainable gardening practices, enhancing soil health through research-based horticulture, and reducing waste via on-site composting. These efforts contribute to more sustainable and climate-resilient environments, benefiting both local ecosystems and broader communities.

Key achievements related to climate resilience include:

- **Climate Change Questions:** Extension Master Gardeners addressed 1,772 climate change-related questions, providing valuable information and guidance to the community.
- **Educational Outreach:** Reached 657 youth and 2958 adults with research-based practices for gardeners, equipping them with knowledge to create climate-resilient landscapes.

- **Educational Classes:** Organized 9 classes for youth and 28 classes for adults, focusing on practical steps to build resilient, climate-friendly landscapes.
- **Workshops:** Hosted 8 workshops, offering hands-on experiences for building climate-resilient landscapes.
- **Demonstrations:** Conducted 8 demonstrations, providing opportunities for participants to deepen their understanding of creating a climate-resilient garden.
- **Field Days:** Organized 18 field days, facilitating in-depth interactions to connect participants more closely with the principles of climate-resilient landscaping.

REPORTED IMPACTS

- 58% of respondents reported that they plan to start composting as a result of learning how.
- 59% indicated that they plan to reduce their lawn size.
- 54% reported planning to reduce their use of synthetic chemicals.
- 83% reported planning to add native plants to their landscapes.
- 59% said they plan to use natural pest control techniques.

PUBLIC VALUE

WSU Extension Master Gardener volunteers mitigate climate change by providing the community with practical skills for growing resilient landscapes.



Sustainable landscape practices offer significant public value by reducing carbon footprints and various types of pollution. These practices lower greenhouse gas emissions, conserve water, enhance soil health, and support biodiversity. Additionally, sustainable landscapes act as carbon sinks, absorbing and storing carbon dioxide, which helps mitigate climate change. Overall, they contribute to a cleaner, healthier environment and promote a more sustainable future.

DOING OUR PART



WSU Extension Pierce County Master Gardener volunteers created “The Resilient Yard” presentation series to help homeowners reduce their carbon footprint and enhance carbon capture in their gardens. The series includes four presentations: an overview, Lawn Alternatives, Planting Natives, and Veggie Gardening. Attendees learned practical actions such as replacing gas-powered tools with electric ones and adopting planting strategies to maximize CO2 capture and storage in their yards.

Since 2015, **WSU Extension Grant-Adams Master Gardeners** and the Columbia Basin Conservation District have hosted the Columbia Basin Eco-Gardening Symposium, a free, interactive half-day event. Attracting over 100 attendees annually, the symposium features local and regional speakers discussing climate change topics like drip irrigation, soil health, pest/weed management, and drought-tolerant plants. The event also includes exhibitors, mini demonstrations, plant clinic Q&A sessions, free snacks, and door prizes. Positive evaluations indicate that attendees find the training valuable and are motivated to make appropriate changes.

WSU Extension Clark County Master Gardener volunteers hosted a county-wide natural garden tour, showcasing ten

sustainable home gardens to over 700 attendees. Visitors saw demonstrations of composting, wildlife habitat creation, rain gardens, water cisterns, native plants, and natural weed management techniques. A post-event survey of 207 attendees revealed that 58% plan to start composting, 59% intend to reduce their lawn size, 54% aim to reduce synthetic chemical use, 83% plan to add native plants, and 59% will use natural pest control techniques.



Plant Biodiversity

ISSUE

Earth's biodiversity is declining rapidly, with species facing extinction at an accelerated rate. Biodiversity is crucial for maintaining ecosystem health. Understanding local environmental issues can inspire actions to preserve native and vulnerable species. Practices such as reducing lawns, managing invasive plants, and promoting native plants help support biodiversity from individual backyards to broader regions.

CONSEQUENCES

The loss of biodiversity can lead to significant ecological and human impacts. Ecosystem functioning and stability decline, reducing the services ecosystems provide, such as food, clean water, and air. This can result in increased vulnerability to pests and diseases, reduced agricultural productivity, and greater water scarcity. Additionally, the loss of genetic diversity within species can lead to inbreeding and a higher risk of extinction.

The decline in biodiversity threatens the health of the planet and human well-being.



OUTREACH

The Extension Master Gardener Program volunteers teach the stewardship of diverse ecosystems by engaging in invasive species management, conservation of native species, and landscape restoration, ultimately contributing to the establishment of healthy, thriving, and diverse ecosystems.

Following are some key achievements and activities:

- Reached a total of 5,097 adults and 2,213 youth to raise awareness about the significance of biodiversity through educational outreach.
- Extension Master Gardeners provided answers to 5,353 questions related to biodiversity at *Ask a Master Gardener* plant clinics.



- Conducted 79 classes for adults and 53 classes for youth, focusing on biodiversity and emphasizing the importance of invasive species management.
- Organized 23 demonstrations for adults and 21 for youth, offering attendees a visual understanding of what biodiversity entails.
- Held 28 workshops for adults and 34 for youth, providing practical knowledge and tools to support biodiversity efforts.
- Organized 50 field days for adults and 20 for youth, creating immersive experiences to further connect participants with biodiversity initiatives.

REPORTED IMPACTS

- Participants report they are better equipped to identify invasive plants and animals.
- Participants learned how to report invasive species to Washington State Invasive Species Council.
- Participants report they will increase the number of native plants in their landscapes.
- Participants gained knowledge of how to select the right plant for the right place based on site conditions.

PUBLIC VALUE

WSU Extension Master Gardener Program sustains biodiversity by teaching stewardship of healthy ecosystems and about controlling invasive species.

These efforts empower individuals to help safeguard ecosystem functioning, enhance biodiversity, and promote environmental stewardship. By teaching individuals how to make impactful changes in their homes, landscapes, and gardens, the program contributes to cleaner air and water, healthier soils, and more resilient local ecosystems. This, in turn, supports public health, food security, and overall community well-being.



DOING OUR PART

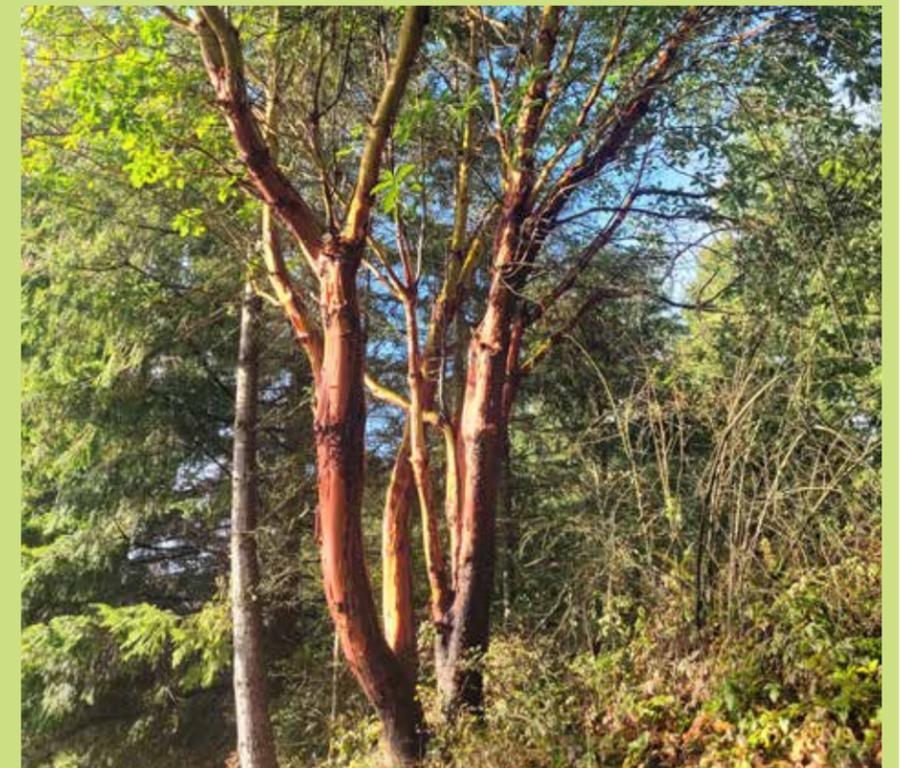
WSU Extension San Juan County Master Gardener volunteers hosted a webinar that drew 220 master gardeners and home gardeners from across the state. The class, led by Doug Tallamy, PhD, an entomologist and conservationist, highlighted the alarming decline in global insect populations and the loss of three billion birds in North America. These trends reveal the shortcomings of current landscape designs in supporting essential plant and animal life. Tallamy advocated for removing invasive plants and introducing native plant communities to sustain food webs, sequester carbon, support diverse native bee populations, and manage watersheds. By converting half of our lawns into these native habitats, we can create a "Homegrown National Park," a network of viable habitats across the U.S. that connects remaining natural areas. This grassroots conservation approach empowers individuals

to play a crucial role in preserving the natural world and offers restorative benefits to those who participate.

95% of surveyed respondents found the workshop information

extremely or very useful.

Additionally, 93% indicated they were extremely or very likely to change their gardening practices after the lecture.



Wildfire Preparedness



ISSUE

Wildland fires annually devastate homes and properties in the wildland-urban interface, where residences are built near or within fire-prone areas. Research shows that up to 80% of homes lost to wildland fires could have been saved if vegetation around them was cleared and defensible space was established. Proper planning and landscape practices are crucial in reducing the risk of wildland fires damaging or destroying property.

CONSEQUENCES

Without defensible space and proper vegetation management, fires can spread more easily to structures, endanger lives, and increase the likelihood of significant property loss, environmental damage, higher economic costs, and threats to human safety. Improper landscaping in fire-prone areas can also intensify and spread wildfires, making them harder for firefighters to control.

OUTREACH

Extension Master Gardener volunteers are crucial in addressing fire-resistant landscaping inquiries, demonstrating best practices, and educating communities about wildfire risks. Participants learn to create defensible space, understand fire defense zones, identify potential fire ignition sources, and select appropriate plants to protect their homes.

- Extension Master Gardeners responded to 539 questions in plant clinics, aiding clients in comprehending and implementing defensible space around their homes.
- They conducted 9 classes, emphasizing optimal landscaping practices for wildfire preparedness.
- 13 demonstrations offering attendees a visual learning experience for creating defensible landscape spaces.



- 1 workshop was organized, offering hands-on experiences to learners interested in fire-resistant landscaping practices.
- 6 field days were held to provide participants with tangible experiences, helping them visualize and better understand fire-resistant landscaping practices and principles.

REPORTED IMPACTS

- Participants gain understanding of what is meant by 'defensible space' and the different zones of defense.
- Participants are able to identify and create a fire-defensible landscape around their homes.
- Participants know how to select fire-resistant plants.

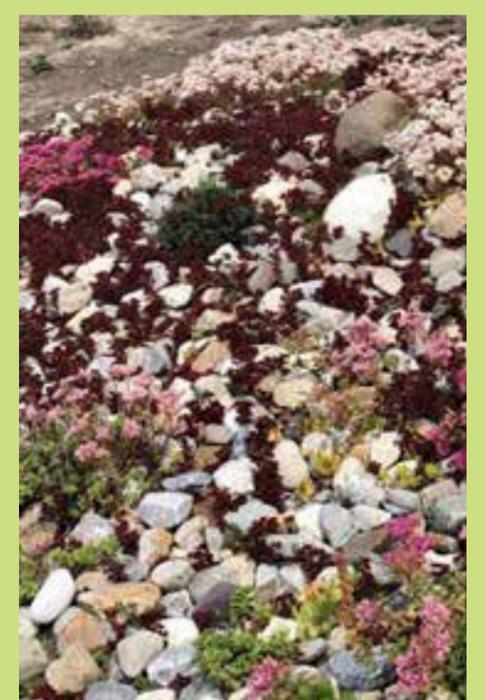


PUBLIC VALUE

WSU Extension Master Gardener volunteers decrease the risk of loss due to wildfire by teaching fire-resistant landscaping principles.



By educating the public on creating defensible spaces and managing vegetation, these efforts help protect homes and properties, enhance community safety, and minimize environmental and economic impacts of wildfires.



DOING OUR PART

Stevens County, Washington, experiences very hot and dry summers and has many unmanaged forested areas, making it highly prone to wildfires. To address this, **WSU Extension Stevens County Master Gardener** volunteers host a Firewise Demo Garden in Colville. This garden features informational signage, design elements, and plantings that educate the public on

making their landscapes more "Firewise." It includes six stations with pictures and examples of fire-resistant building materials, as well as plantings that demonstrate firewise landscaping practices. One section specifically shows what is not firewise, such as several juniper varieties planted too closely together.

In August, at the Skagit County Fair, the **WSU Extension Skagit County Master Gardener Program** showcased a 3D model illustrating fire-safe landscape zones. This exhibit attracted the most attention at the booth, prompting numerous questions and discussions about wildfire safety and risk reduction.

Nearby Nature

ISSUE

With over 80% of the U.S. population and more than 50% of the global population living in urban areas, nature in cities—like parks, gardens, and trees—provides significant benefits. These include improved air and water quality, energy conservation, and reduced urban heat island effects. Exposure to nature enhances physical and mental health, benefiting many people daily. Additionally, urban nature contributes to “green infrastructure”, promoting sustainable urban environments.

CONSEQUENCES

Insufficient green infrastructure in urban areas can lead to increased pollution, exacerbation of the urban heat island effect, and poor water management, resulting in more frequent and severe flooding. It also reduces biodiversity and negatively impacts physical and mental health, lowering the overall quality of life for residents. Additionally, the lack of green spaces can lead to higher energy consumption for cooling buildings. Addressing these issues through strategic planning and investment in green infrastructure can help create more sustainable and livable urban environments.

OUTREACH

The impact of the program is evident in the following accomplishments:

- Volunteers diligently responded to 7,665 questions from the public.
- They conducted 106 classes tailored for adults and an additional 31 classes designed specifically for youth.
- A total of 31 demonstrations were organized for adults, along with 20 demonstrations catering to youth.
- Workshops were held, with 29 sessions for adults and 31 sessions for youth.
- Field days were organized, providing immersive experiences through 80 sessions for adults and 23 sessions for youth.
- A substantial number of individuals benefited, with 8,997 adults and 2,519 youth acquiring sustainable horticulture skills.

Participants gained insights into the numerous health benefits associated with being in nature, learned to select appropriate plants for specific spaces, adapted gardening practices for physical limitations, and acquired skills in designing and maintaining landscapes.

These achievements highlight the program’s commitment to education, community engagement, and the promotion of sustainable horticulture practices for individuals of all ages.



REPORTED IMPACTS

- Participants gained understanding of the role of the home landscape in the local ecosystem.
- Participants gained an understanding of how gardening techniques can be modified for gardeners with physical limitations.
- Participants gained an understanding of the role of shared green space and green infrastructure as community assets, and the role of individuals in protecting those benefits.

PUBLIC VALUE

WSU Extension Master Gardener volunteers significantly enhance community resilience by actively engaging with people, plants, greenspaces, and public landscapes.



These efforts enhance physical and mental health, foster community cohesion, and create more sustainable and resilient environments. Increasing green infrastructure reduces pollution, manages stormwater, and mitigates the urban heat island effect. Additionally, these efforts support biodiversity, enhance recreational opportunities, and contribute to economic development by attracting businesses and reducing healthcare costs, resulting in healthier, more vibrant, and resilient communities.



DOING OUR PART

The **WSU Extension Skagit County Master Gardener** demonstration garden aims to enhance community health and well-being by increasing access to plants, greenspaces, and public landscapes. Open daily from dawn to dusk, it hosts various outreach events to connect the public with nearby nature. The garden features ADA-accessible pathways, including over 2000 feet of 4-foot-wide gravel walkways, allowing visitors to explore beautiful examples of Pacific Northwest gardening.

During an Open House event, which attracted 368 visitors, attendees could visit educational stations throughout the gardens

and have their passports stamped. The stations covered topics such as noxious weeds, soil health and composting, local food, pollinators, nearby nature, drip irrigation, plant identification, and plant clinics. Free seed packets for vegetable gardening, beneficial bug mixes, and pollinator mixes were also distributed.

The **WSU Extension Clark County Master Gardener Program** hosted a special outdoor event called Starry Night at the Farm, inviting the public to explore the 79-acre 78th Street Heritage Farm at night. Master Gardeners set up educational stations on bats and moths and demonstrated how to use a

human sundial to tell time the old-fashioned way. They then guided attendees to a low-light area where, with the help of volunteers from the Rose City Astronomers, participants could observe celestial bodies through telescopes.

Attendees learned about the navigation methods of bats, moths, and other nocturnal animals, as well as the pest management benefits of bats. They also discovered how to use a sundial. As night fell, they joined an amateur astronomy club to observe planets and stars. Participants reported enjoying their time on the property, learning to navigate nature in the dark, and using telescopes—many for the first time!



Advanced Education

WSU EXTENSION MASTER GARDENER ADVANCED EDUCATION CONFERENCE



The WSU Extension Master Gardener Program celebrated a milestone year in 2023, highlighted by the Advanced Education Conference (AEC) held from September 27-29 in Tacoma, Washington. The event attracted over 350 WSU Extension Master Gardeners and garden enthusiasts from across the state, with some attendees traveling from as far as British Columbia and the eastern United States.

Pre-conference activities included five educational garden tours, offering on-site education, and a tour of the WSU Research Station and demonstration garden. The conference commenced with speeches from Jennifer Marquis, the state lead for the WSU Extension Master Gardener Program, and Tana Hasart, president of the Master Gardener Foundation of Washington State. Wendy Powers, dean of the



WSU College of Agricultural, Human, and Natural Resource Sciences, also spoke at the opening. Dr. David Gibby, a co-founder of the WSU Extension

Master Gardener Program in 1973, was an honored guest and welcomed attendees.

The conference featured a keynote presentation by Michael Blackstock of Blue Ecology Circle and offered thirty-five advanced education classes. These classes offered WSU Extension Master Gardeners the chance to earn Continuing Education (CE) credits



while staying updated on the latest research-based gardening and environmental stewardship practices. The offerings span a broad array of topics aligned with the program's nine priorities, in addition to sessions focused on leadership skills.



The conference was made possible through a collaboration between the WSU Extension Master Gardener Program and the Master Gardener Foundation of Washington State. It was organized



by a dedicated team of volunteers from the WSU Extension Master Gardener Program.



PUBLIC VALUE

The WSU Extension Master Gardener Advanced Education Conference underscores the program's dedication to educating master gardener volunteers, providing them with the latest science-based gardening information.



This advanced education empowers volunteers to provide precise advice, advocate for sustainable horticulture, and educate the public on diverse gardening topics. The conference nurtures leadership skills among volunteers, enhancing the program's outreach and effectiveness. Ultimately, the conference is vital in cultivating a knowledgeable, sustainable, and engaged gardening community.



Program Funding

The WSU Extension Master Gardener Program is funded through the United States Department of Agriculture through the National Institute of Food and Agriculture (USDA-NIFA), Washington State University, county governments, grants, fees for service, donor gifts and bequests, and by the generosity of Master Gardener Foundations.

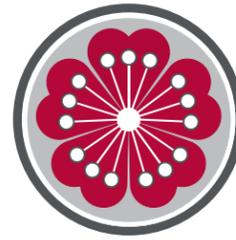
The following chart depicts the direct support that comes from WSU through USDA-NIFA, County governments, and WSU to pay for the salaries and benefits of the faculty and staff who provide direct support to the WSU Extension Master Gardener program. Through 13 full time equivalent positions and 47 partial appoints, WSU provides more than \$1.8 million annually to our Program.

This amount does not include ancillary programs like support

from WSU's College of Agricultural, Human, and Natural Resource Sciences (CAHNRS) IT and CAHNRS Marketing and Communications. It does not include the direct support our program receives from the Pesticide Resource and Education Program (PREP) or from the WSU Integrated Pest Management Team, which share the responsibility for Hortsense, Pestsense, Pesticide Information Center OnLine (PICOL) and for delivering pesticide use and safety education to extension master gardener volunteers. Nor does it include direct support from

In 2023, 4,000 WSU Extension Master Gardener volunteers contributed a total of 301,000 hours, valued at \$12,124,280 (Independent Sector). Remarkably, these volunteer hours are equivalent to 145 full-time positions dedicated to cultivating plants, people, and communities for a resilient Washington.

the Academic Office of Innovation (AOI), which supports the delivery of basic training.

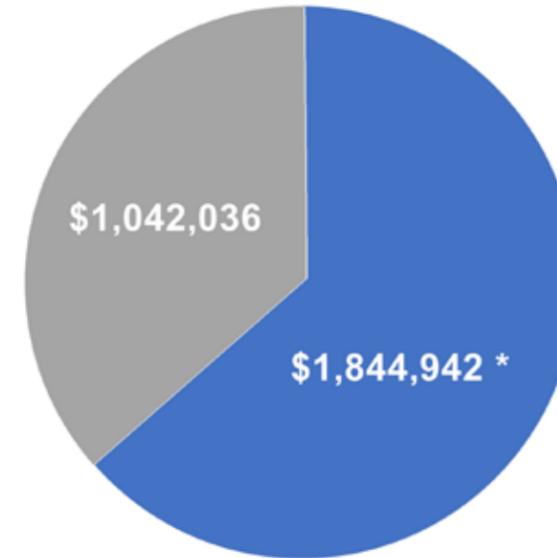


Also excluded from this amount is the value of facilities, maintenance, and operations provided by WSU. Our Program benefits from the office space, computer equipment and the supplies within. It benefits from the use of land for demonstration gardens on Research and Extension Center properties and from the use facilities such as sheds, greenhouses, and teaching spaces.

This chart also shows the financial support provided by the Master Gardener Foundations. The amount reflects the sum of all foundations operating budgets less grants or gifts that are offered outside of the Extension Master Gardener Program. Funds from Foundations are used to support the delivery educational outreach and volunteer recognition events and awards, and general operations of the WSU Extension Master Gardener Program.



Estimate Financial Support for the WSU Extension Master Gardener



- WSU paid salaries and benefits *
- Foundation sponsored Program support

* This amount **excludes** support from various WSU programs, facilities, and resources, including CAHNRS IT, CAHNRS Marketing, PREP, the Integrated Pest Management Team, AOI, and the value of office space, equipment, and land for demonstration gardens.

