



Community Agriculture Conservation

Resource Guide

“A lack of access to fresh, healthy foods can contribute to poor diets and higher levels of obesity and other diet-related diseases.”

(Healthy Food Access, USDA.gov)



Click image above to play video

Video Clip Courtesy of King County

*Watch the entire 2018 Food Report Video [here](#).
Bringing safety, green space, and value to a neighborhood while
improving a community's health*



INTRODUCTION:

Seeds for Success

Schools, individuals, non-profits, and places of worship, can all expand access to healthy food and teach important natural resource stewardship in the urban landscape. Food access and security has become increasingly important as we face the impacts of amplified population density, climate and weather pattern changes, and the threat of natural disasters.

Along with providing a much-needed source of healthy, locally-grown food, urban gardens provide a wide range of benefits, including:

- Soil, air, and water quality improvements
- Stormwater management
- Increased property values and aesthetics
- Education and recreational opportunities for communities and schools
- Beneficial pollinator and wildlife habitat
- Reduced crime and an increased sense of belonging to a community

This booklet offers step-by-step guidance for establishing an urban garden, to help YOU turn an underutilized space into a productive community asset. We hope it inspires you to plant the seeds of change in your neighborhood and share the bounty of the harvest that results!



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The Benefits of Urban Agriculture



Nutrition and Health

Fresh food is higher in nutrients and lower in fats, salts, and sugars than processed foods—yet obtaining healthy, fresh food is often a challenge in some King County urban areas.

Even where supermarkets are nearby, the available “fresh” food is usually subjected to standard practices in the American food industry: it has been picked unripe, processed, packaged, and shipped a long distance to our local store. Produce fresh from the garden lacks the preservatives, packaging and chemicals often applied to commercial produce to keep it fresh in the store. Food that is grown in a community garden not only has higher nutritional value, it just tastes better.

Plus simple changes to diet, like cooking with fresh herbs instead of salt, can make a significant improvement in an individual’s health. Herbs—such as basil, parsley, dill, and cilantro—are easily grown in pots or small garden plots; they’re perfect for any sized urban garden, or even a windowsill pot!

Education and Urban Youth



Photo Credit: Anthony Harris

Gardens are a tremendous asset to school districts and a number of schools in King County are planting gardens and incorporating their use into the curriculum.



Photo Credit: Anthony Harris

Urban gardens can act as a classroom for adult community members and are excellent venues for informal peer-to-peer learning and formal curriculum programs.

Education and Urban Youth

School gardens have the potential to teach a wide range of skills and topics, including biology, chemistry, soil science, weather, environmental science, horticulture, entomology, physical fitness, nutrition, mathematics, design, and more.

Involving young people in the creation and care for gardens helps nurture:

- Basic business principles
- Leadership opportunities and responsibility
- Job and life skills
- Healthy eating
- Environmental stewardship
- Physical fitness opportunities
- Access to fresh air and an outdoor environment



HIGHLINE
COLLEGE

Highline College offers a cutting edge education in sustainable agriculture that can be directly applied to the food production industry or a home garden. Find out more about the program and classes offered [here](#) or search Highline Urban Agriculture Program.



Turning an unused property into a productive one:

- 1 Creates an aesthetic amenity that is a recreational and educational asset
- 2 Increases property values
- 3 Lowers crime rates
- 4 Brings people together for a common purpose
- 5 Creates new leaders and enhances volunteerism in the community

Unused properties can drag down a neighborhood.

They can become an eyesore, attract trouble, and break the continuity and energy of a street. Urban gardens can have the opposite effect, increasing aesthetics, a sense of community ownership, stewardship, involvement, and pride.

Along with stability and social interaction, community gardens create opportunities for exercise, fresh air, and the psychological benefits of immersing oneself in nature.

Did you know?



A single little brown bat can eat up to
1000 mosquitos per hour



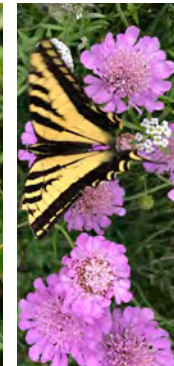
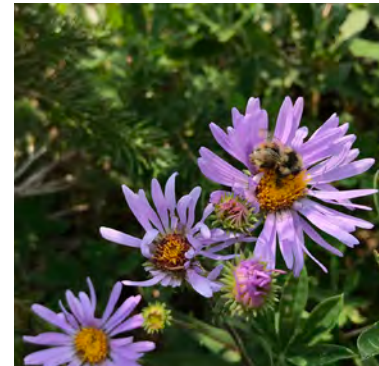
Native plants provide **the most benefit** in terms of food for pollinators

Search [King County pollinator information](#) to find helpful information on gardening to support native pollinators.

Wildlife and Pollinator Habitat

In addition to growing food, urban gardens provide habitat for beneficial wildlife, pollinators and pest predators. Pollinators (such as bees, butterflies, ants, beetles, bats, and hummingbirds) are vital for the successful fertilization of garden plants and fruit, while predators (including lady beetles, birds, amphibians, and harmless snakes) manage the pests that threaten gardens.

Think of your garden as a mini-ecosystem in the city—and realize that having a healthy garden ecosystem is key to a garden's success!



Important Considerations





Conservation and the Environment

Healthy soil and access to clean water are key building blocks of any garden, and are particularly important in urban agriculture where contamination or adequate supply are common challenges. Soil is the foundation for life and the basis for growing food, while water is imperative for plant growth.

Growing food brings opportunities to promote soil and water conservation, which will improve the environment and lay the foundation for the ecosystem to grow crops. In an urban setting, healthy soil and access to water is often limited, so it is important to think about conserving these precious resources when taking on an urban agriculture project.

When it Rains

Regular rainfall is a good thing for plants, but stormwater runoff from rooftops, parking lots, roadways and nearby properties can carry pollutants into community gardens. It can also cause erosion, which transports soil along with harmful pollutants into local sewer systems, rivers, streams and ultimately into the Puget Sound.

Polluted runoff can contain:

- Road salt
- Motor oil
- Trash and litter
- Heavy Metals
- Pesticides and herbicides
- Other chemicals

Water Catchment Calculations

For every 1" of rain falling on 1,000 square feet of surface you can capture 600 gallons of water.

Example: If a 10 x 20 shed has 200 square feet of roofing surface and in King County we average 42" of rainfall annually, then the rain runoff captured from BOTH sides of the roof pitch would be 5,040. Be sure to have an overflow plan!

Urban Runoff



In the Pacific Northwest, we often have too much rain when we do not need it and not enough when we do. Collecting rain water in cisterns can be an excellent way to equalize water needs. Be sure to check King County's rules and regulations [here](#) or by searching King County Rainwater Catchment Systems. While it is legal to collect rainwater to water plants, there are several important considerations to take into account, such as the total amount of water one can store in a cistern and the different types of runoff that may be found in your rainwater.

Irrigation Water

Access to water is often a limiting factor in site selection for urban gardens, yet a steady source of clean water is imperative for plant growth, especially during hot dry summer months. Like soil contamination, groundwater or reclaimed water that is contaminated presents challenges, so testing may be required to ensure the safety of your water sources.

Rain barrels and cisterns—which connect to roof gutter downspouts—can offer a double bang for the buck for urban gardeners because they provide access to water and manage stormwater. They alone, however, are not reliable sources of water for an entire garden, especially in times of drought, so backup water sources are critical. Note: Water from rain barrels and cisterns should not be used as drinking water.



Water Conservation

Regardless of your source of water, employing conservation measures can help with water management in urban gardens:

- Using native plants, which are adapted to the local climate and require less frequent watering
- Mulching to lock in moisture and cut down on watering
- Using drip irrigation or soaker hoses to cut down on water loss due to evaporation
- Collecting water through the use of rain barrels or cisterns for reuse

A comprehensive guide to rain barrel/cistern sources, local regulations and case studies can be found [here](#) or by searching King County Rain Barrel Information.

Safe Soil

Oftentimes, urban gardens are sited on former building lots, parking areas, or even dump sites, which could mean they contain contaminated soils that present a threat to human health. Knowing the history of a potential site and testing the soil are crucial steps to take prior to final site selection.

If soil contamination is present, remediation is often possible. Gardening in raised beds, importing clean top soil, or amending and improving the soil may also be options if clean up is cost prohibitive.

KCD offers qualifying King County residents up to 5 Free soil tests that analyze soil pH, organic matter, macro/micro nutrients and offer recommended amendments. For an extra fee, soil can also be tested for an array of toxic substances. A list of independent labs that offer soil and/or water toxicity testing can be found [here](#) or by searching Washington Department of Ecology.

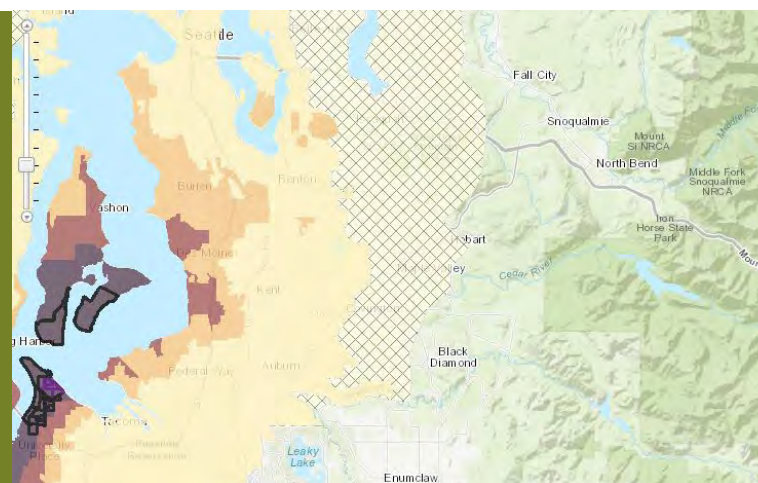


Safe Soil

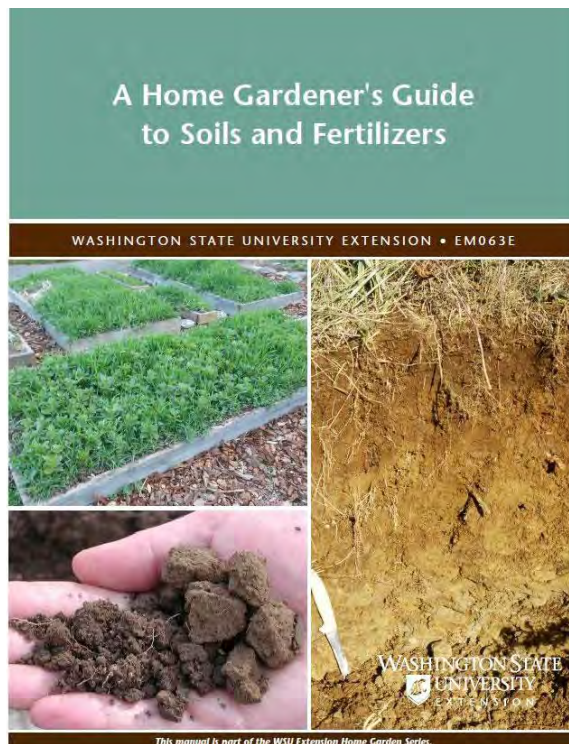


Special consideration should be given to food gardens within the Tacoma Smelter Plume. The Tacoma Smelter Plume is a 1,000-square mile area in King, Pierce, and Thurston Counties impacted by arsenic and lead in the soil from an industrial copper smelter in Ruston, WA. Arsenic and Lead in soil can cause adverse health effects with long-term exposure.

Arsenic and lead in soil can cause adverse health effects with long-term exposure. Enter your address [here](#) (or by searching Tacoma Smelter Search) to determine your location's exposure and remedy advice.



Tacoma Smelter Plume Map



Organic matter, microbes and fungi are need for plant growth and optimal yield.

Often urban soil may be compacted and lack topsoil, requiring amendment prior to planting. Compaction will be a significant hinderance, in terms of both root growth and water drainage.

Adequate draining is important for a healthy community food garden, as waterlogged soil can impair plant growth and promote disease. Not only does soil need to drain well, it needs to hold water adequately to nourish plants.

More information on healthy soils can be found [here](#) or by searching for this WSU publication.

Healthy Soil

KCD promotes soil testing to help determine the correct levels of soil nutrients. Nitrogen, phosphorus and potassium (N-P-K) are each important to soil fertility. By amending these nutrients individually, unneeded nutrients avoid making their way into and polluting our waterways.

Sowing cover crop seed is an excellent way to ensure that important nutrients do not leech out of the soil during our PNW winter rains.

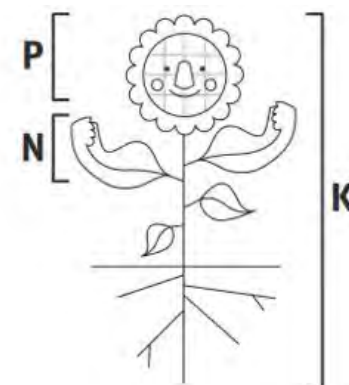


Illustration courtesy of Tilth Alliance Garden Hotline

Site Selection



Site Ownership

One of the first steps in organizing a community garden is locating an appropriate site. Sometimes a vacant lot is the impetus for forming a garden, but other times securing land is very challenging.



Suitable sites may include:

- Vacant lots
- Places of worship
- School property
- De-paved parking lots
- Land adjacent to community organizations-community centers, senior center, library, food pantry, or other civic buildings
- Common spaces in residential neighborhoods/apartment complexes
- Under overhead utility pathways
- Public parks
- DOT right of ways/Transit hubs

Before selecting a site, ensure that permission has been granted by the property owner and follows all municipal requirements.

Make an agreement in writing, outlining such details as:

- Function of the space
- Terms of a lease
- Access to water for the site
- Who will have access
- Liability insurance
- Other pertinent issues

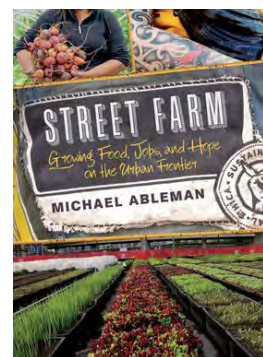
A simplified sample land use agreement form, from the American Community Gardening Association, is available [here](#).

Proximity to community members

In urban settings that lack transportation options, it is important to locate gardens within walking distance for community members. Convenience increases engagement and the likelihood of success.

- 1 Make an easy commute
- 2 Consider access in hot summer months, when watering is crucial
- 3 Think about access via sidewalks, an important safety factor
- 4 Promote the Community Garden by adding a colorful sign and include the name and contact information of the organization in charge

Access to Urban Land



The high cost and rapid development of land within King County's urban corridor impacts options for creating community food gardens. Consider the moveable garden model demonstrated by our neighbor to the north at Sole Food Street Farm, Vancouver. In order to access vacant and contaminated land, the Farm guaranteed that they could vacate the property within six months and developed raised beds that were both mobile and food safe. Read Michael Abelman's inspiring (and visually beautiful) story in *Street Farm: Growing Food, Jobs and Hope on the Urban Frontier*.

Did you know that the average cost of an acre of farmable land in the Midwest is \$4-6,000? In King County, that same acre would cost upwards of \$40,000.

Municipal Requirements



The City of Seattle has prepared a comprehensive guide to urban agriculture within the City's limits. It can be found [here](#) or by searching Seattle Permits Tip 244. Use this guide to know what questions to ask your city zoning department about citing a community garden in your city.

Zoning & Land Use Regulations

When plotting a location for a community garden, it is important to consider the property's zoning and land use requirements. While not all municipalities have a specific section of their code dealing with urban agriculture or community gardens, many do have requirements in their residential and commercial zoning provisions related to the keeping of animals and accessory structures like greenhouses and apiaries. Some municipalities' zoning codes and local ordinances may not allow for agricultural projects or community gardens on certain types of properties, so you should be sure to contact your local municipality and ask about any such restrictions as soon as you have identified a possible property.

The People



Photo Credit: Hannah Letinich

Dedicated volunteers are a critical component of success. There is no replacement for hands-on- the-ground and expertise to manage the gardens.

Volunteers, Members, Community Partners

To get community members involved, post flyers and posters at local businesses and around the neighborhood; place notices in area newsletters and on the social media pages of local organizations and community leaders; connect with after-school/ church organizations.

Hold multiple community meetings so people can learn about the garden, ask questions, share ideas, and sign up for garden plots.

To keep people engaged, get them to care about the cause and offer a variety of tasks and responsibilities to accommodate different levels of interest, personality types, and schedules.

Consider that an urban agriculture project provides an opportunity for corporations, churches, schools, and service clubs to engage in volunteer efforts. Reach out to these kinds of groups to see if there are creative ways to collaborate: take on special projects, get extra help with garden upkeep, weed common areas, facilitate peer-to-peer education, create a community gathering space.

Looking for volunteer opportunities for your civic group, business or scouting troop? Find a garden at www.kcdcommunityag.org.

Second to site selection, establishing an operating structure and assigning roles is the crucial next step in moving forward with a new garden. Positions may be paid, all volunteer, or a combination of both.

Tasks, Committees, Rules

Examples of critical roles include:

- Manager/Director
- Membership Coordinator/Treasurer
- Volunteer Coordinator
- Marketing/Social Media
- Operations/Governance

Rules should be established to cover:

- Cost to rent plot (Will scholarships be available?)
- Growing season (Will there be an off season?)
- Keeping plot neat (What materials can be used for trellising or fencing?)
- Non-participation (How long can a plot go unattended?)
- Disposal of green waste (Are composting areas available?)
- Access to tool storage areas (Who will have combination/key?)
- Access to irrigation water (Who will have access? What are approved uses?)
- Distribution of resources---compost, soil, seeds, plant starts

Be sure to obtain liability insurance to cover anyone working or volunteering in the garden.

Retaining Engagement

Keeping gardeners and volunteers engaged is a challenge that every community garden faces throughout its operation, yet is vital to a garden's success and viability. A key to retaining interest in the garden is to make it fun and rewarding.

Ways to do this include hosting regular events at the garden such as:

- Potlucks/Barbecues
- Group Work Days
- Movie Nights
- Classes/Workshops
- Zucchini Gran Prix
- Farm Stands
- Weed Dating/Yoga
- Cider Pressing
- Harvest Parties
- Concerts



Communication creates buzz and keeps people involved:

Generate a newsletter and/or use social media to communicate what is happening in the garden.

Reward and thank garden volunteers. A monthly or annual award for service or a friendly competition to ignite participation may encourage volunteers to remain dedicated.

Market your garden using strategies such as door-to-door contact, a social media presence, distributed flyers via local businesses, churches, clubs, and schools; and posters hung around the neighborhood.

Establishing an e-mail distribution list early on in the process to save time in the future.

Set up a publicity table at local events, school carnivals, or at a local farmer's market to get the word out.

Engage in community partnerships and invite neighbors in to see what you are doing to get people interested in participating.



Follow [Hillside Paradise Parking Plots Community Garden](#) on Facebook for an example of engaging social media.

Photo Credit: Sladek Photography

Tips for a Successful Community Garden

- 1** Hold regularly scheduled workdays to establish expectations about upkeep and allow gardeners to meet one another.
- 2** Require and enforce minimum hour contributions to help maintain the garden.
- 3** Post rules and updates in an easy-to-see location in the garden, and keep a space available for notifying members about upcoming events.
- 4** Solicit sponsors from the community and keep them informed of garden happenings.
- 5** Hold at least one orientation meeting before the planting season begins in order to help new members learn how the garden operates and teach them basic skills.
- 6** Suggest an organization, such as local food bank, for donation of excess produce.
- 7** Tap local garden clubs and County Extension Services to bring in experts to teach workshops on different aspects of gardening, nutrition, and more.
- 8** Add a shed for securely storing gardening tools and supplies such as shovels, rakes, trowels, hoses, hoes, and a first aid kit.
- 9** Install fencing to keep animals and children out and define the area under care of the gardeners. A gate with a lock may be necessary, depending on the environment of the neighborhood.

Dollars & Cents



Date July 7th, 2017

Paradise Plots \$ 75,000

Five Thousand Dollars

Dave Upthegrove



Photo Credit: Jacob Carter Photography



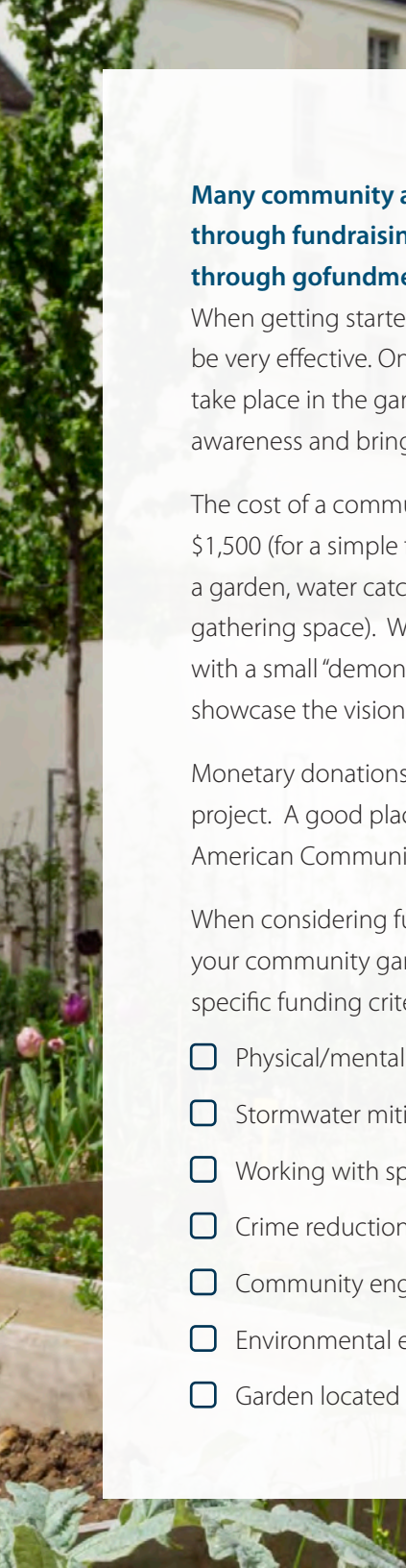
Starting an urban agriculture project is often heavy on the upfront costs, but there are many possible sources of funding to help cover expenses.

Start-Up & Ongoing Maintenance Costs

Funding sources include membership dues/garden plot lease fees, grants, corporate donations, in-kind donation of money and supplies. Costs to keep in mind include:

- Ground lease fees for the garden space
- Permit application and title search fees, if applicable
- Remediation, if needed, to address contamination
- Soil amendments and tillage
- Installation of a water source
- Construction of raised beds, mulch or rock for pathways, and topsoil
- Garden shed, tools, and/or rain barrels
- Fencing
- Printing, signage, marketing, and advertising costs
- Liability insurance
- Mowing, garbage collection, and portable toilet rental fees
- Ongoing Utilities (electricity/irrigation water)
- Staffing for Garden Manager (optional)

Photo Credit: Jacob Carter Photography



Many community agriculture projects get off the ground through fundraising campaigns and online crowd funding through [gofundme.com](https://www.gofundme.com), [kickstarter.com](https://www.kickstarter.com) or other similar sites.

When getting started, a direct-appeal fundraising campaign can be very effective. Once up and running, fundraising events that take place in the garden serve the dual purpose of raising money, awareness and bringing community together.

The cost of a community food garden project can range between \$1,500 (for a simple four raised bed garden) to \$500,000 (for a garden, water catchment system, commercial kitchen and gathering space). When planning a large project, it is best to start with a small “demonstration” project that offers the opportunity to showcase the vision of phasing a larger scale venture.

Monetary donations may be useful in funding your garden project. A good place to start your search for garden support is the American Community Garden Association website’s funding page.

When considering funding sources, determine what aspects of your community garden besides food production may meet specific funding criteria:

- ☐ Physical/mental health outcomes
- ☐ Stormwater mitigation (cisterns/raingardens)
- ☐ Working with specific populations (immigrants, youth)
- ☐ Crime reduction
- ☐ Community engagement/development
- ☐ Environmental education
- ☐ Garden located within a USDA designated Food Desert

Fundraising and Grants

Once you have defined a list of garden features and benefits that could be candidates for funding, research the following funding sources:

- ☐ American Community Garden Association
- ☐ Community/Neighborhood Block Grants (your city)
- ☐ Rotary and civic organizations
- ☐ Home Depot – Team Depot projects
- ☐ BECU People Helping People
- ☐ Rose Foundation
- ☐ Philanthropy News Digest
- ☐ Foundationcenter.org
- ☐ King County Library System database
- ☐ USDA National Institute of Food and Agriculture (NIFA)
- ☐ Research individual foundations that may support your project (health care, credit unions, food purveyors)
- ☐ USDA National Institute of Food and Agriculture (NIFA)
- ☐ King County Conservation Futures Tax Program

Working with a professional photographer to chronical your progress will bring your project to life in grant writing, social media posts and advertising.

A useful resource in siting your proposed community food garden is Washington’s Office of Public Instruction Report Card. By searching school districts and individual schools, you can identify schools with high rates of Free & Reduced Lunch participants who will benefit most from access to fresh, healthy food from the garden.

In-Kind Donations

Many community gardens rely heavily on in-kind donations, which most often comes in the form of volunteer time.

Some gardens secure direct donations of soil, mulch, lumber, seeds, plants, tools, benches, and other needed items from local businesses and organizations. Any donation of services or materials can be deemed an in-kind donation. So be sure to track the value of all such contributions; they can be counted as “matching funds,” which are helpful to note in grant applications to show you have already gained local community support.

When factoring in-kind volunteer hours for grant writing, use the hourly rate calculated by [IndependentSector.org](https://www.independentsector.org/).

Designing a Community Garden



A vital first step to designing a community food garden is answering the following questions to determine what **type** of garden will work best:

Garden Set Up

Who will the garden benefit?

- ☐ Individual gardeners (P-Patch model)
- ☐ Community garden (food for the taking)
- ☐ Growing for food bank or shelter distribution
- ☐ Hybrid
- ☐ School garden (who will manage during summer months?)

Where will food be grown?

- ☐ Wood raised beds
- ☐ Galvanized stock tank raised beds
- ☐ Raised beds of other material _____
 - ☐ In ground (be sure to test soil)

How will food be grown?

- ☐ Organic only practices
- ☐ Permaculture practices (hügelkultur)
- ☐ Acceptable weed and pest management (IPM)
- ☐ Use of food waste compost
- ☐ Use of bio solid compost

Which of these important elements will be included in the community food garden design?

- ☐ Individual Garden Plots
- ☐ Community Communal Garden Space
 - ☐ Orchard
 - ☐ Berry Trellis
 - ☐ Garden Beds
- ☐ Composting Bins
- ☐ Trash
- ☐ Farm Stand
- ☐ Garden Signage
- ☐ Communications Bulletin Board
- ☐ Cisterns for Irrigation Water
- ☐ Raingardens for Stormwater Mitigation
- ☐ Tool Storage
- ☐ Covered Area for Gathering/Wash & Pack
- ☐ Play Areas for Children
- ☐ Parking
- ☐ Near Transit Stop



In-Ground Growing

Preparing an open area for in-ground growing requires some extra attention to ensure soil health and a weed free planting area.

- ☐ Test your soil for toxins (see pages 15 and 16 for more information). If toxicity is an issue, consider gardening in raised beds
- ☐ Test your soil for nutrients (see pages 53 and 54 for details on KCD FREE soil testing).
- ☐ Clear the ground of blackberries and other weeds (by hand, mechanically or chemically)
- ☐ De-turf grassy areas (consider renting a walk behind de-turfer from a home improvement store or rental yard)
- ☐ De-pave asphalt areas (research King County asphalt recycling rules)
- ☐ Amend soil according to soil test
- ☐ Add organic matter/compost
- ☐ Create a weed sterile planting area
- ☐ Create bed layout (research JM Fortier's [The Market Gardener](#) for ideas)
- ☐ Create irrigation layout

The benefits of in-ground planting include increased planting area and the ability to use machinery for seeding, tilling and application of amendments. Special attention should be given to how individual gardener's "ownership" of in-ground gardening space will be determined.



Raised Bed Growing

Raised bed growing is often the best option when site aesthetics is important. Be sure to allow enough space between beds to accommodate wheelbarrows and foot traffic.

- ☐ Determine number of beds the space will allow (for example, 4' x 8' beds with 3 feet walkway between each)
- ☐ Determine building materials
 - ☐ 2" x 12" fir (most economical)
 - ☐ cinder blocks
 - ☐ galvanized stock tanks
- ☐ Determine optimal height of beds for maximum accessibility
- ☐ Order soil/compost (3:1 ratio)
- ☐ Determine material for walkways to suppress weeds (sign up at getchipdrop.com for arborist wood chips)



Stormwater Management

In urban areas, there are significant impervious areas—paved surfaces that prevent water infiltration.

Roads, driveways, parking lots, rooftops, and other surfaces that prevent water from soaking into the ground greatly increase the volume of runoff that is created during storms.

This runoff picks up pollutants and transports them into our stormdrains and, all too often, directly into waterways. Runoff can also cause erosion and wash the topsoil from our gardens if its volume is too high and not properly managed.

Gardens provide a great opportunity to capture rainwater and enable it to infiltrate into the soil, rather than running off the land. Collecting rain and stormwater runoff in rain barrels or cisterns, as well as constructing raingardens to collect and infiltrate rainwater can effectively manage stormwater while also providing benefits to the garden.

For more information and resources to manage stormwater, please research:

- King County Waterworks Grants
- Seattle Public Utilities RainWise Program
- King County Stormwater Services
- Stewardship Partners 12,000 Raingardens

A young deer with white spots is grazing in tall grass next to a stone wall. The background is blurred, showing green foliage and a wooden fence.

Wildlife Control

Beneficial wildlife is welcome in our urban gardens, yet some critters can become a nuisance and should be excluded for the success of the garden and the safety of its members.

Rabbits, deer, raccoons, squirrels, chipmunks, voles, groundhogs, possums, skunks, and woodchucks are just a few of the animals that can wreak havoc in your garden—not only do they destroy crops, they also have the potential to carry disease.

A fence can help exclude some of these animals, but many can climb over or dig under to seek the delicious vegetables and fruit you've worked so hard all season to grow. Managing brush and compost piles can help deter pests. Other strategies include:

- Buried fencing with adequate size mesh
- Scarecrows, shiny streamers, or other visual deterrents
- Noise effects such as poppers or a predator soundtrack
- Chemical repellants applied to the plants
- Trapping and relocation
- Off-site composting

For additional guidance on wildlife control, see Washington Department of Fish & Wildlife's [Living with Wildlife](#) page.

Keep in mind that there are regulations regarding wildlife management.



Garden Operations



Photo Credit: Sladek Photography



Garden Planting

Garden success starts with proper seed or plant selection and planting. Plant starts can be a more time-effective way to establish a garden, but they are also more costly. Seeds can be started inside, are the most inexpensive approach and provide a great educational experience that enables gardeners to literally “see the garden grow” from seed through harvest.

- Ask retailers to donate “expired” seeds
- Hold a seed drive
- Work with a classroom or troop to plant/care for seeds
- Identify schools or individuals with available greenhouse space to care for planted seed trays

Gardening in the Maritime Northwest offers an average 170 day growing season. We typically have a “false” spring in late February and many gardeners are quick to plant too early. On average King County’s last frost date is around April 29th each year and first frost date is November 1st. Check the [Old Farmers Almanac](#) for last frost date in your specific area and plant accordingly.

An excellent source for discovering month by month gardening in our climate is [Tilth Alliance’s Maritime Northwest Garden Guide](#). You can purchase this comprehensive guide at Tilth Alliance’s website.

Companion planting combines two or more varieties of plants in the same plot to benefit and improve yields. For example, the “Three Sisters” is an indigenous companion planting model of corn, beans and squash together. The beans help fix nitrogen in the soil, which is important for the nitrogen hungry corn. The corn provides vertical growing structure for the beans and the squash grows along the ground and crowds out weeds.

Trap plants function as decoys and provide another food source for garden pests, keeping them away from your crops. Trap plants work best when planted before your intended crop. Once the trap plants are infested with pests (e.g., aphids), they can be pulled out and thrown away to avoid spreading to important food crops.

Pollinator plants are an important part of every food garden! Attracting pollinators by planting flowers will help increase yields of pollen dependent plants while making the garden space attractive and providing stock for cut flowers.



Garden Accessibility

Ensuring that everyone can easily access the garden space is an important consideration and key to any project's success!

Materials Available in Native Language

King County has an ever-growing immigrant and refugee population (many who arrive with agrarian backgrounds). Having garden information that they can access either in their native language or in pictograph form will benefit their transition to becoming successful Pacific Northwest gardeners.

Transit Dependent Accessibility

Siting a community garden on a public transit route ensures that gardeners without vehicles can access the garden. Be sure that garden resources (shed, irrigation water) are open and available while transit is running.

Handicap/Low Mobility Accessible

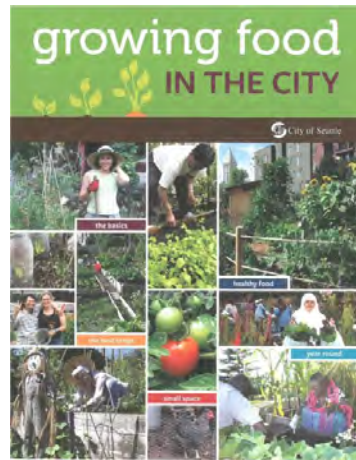
Including beds that are at 24" in height, will ensure easier access for gardeners with low mobility issues. Siting them on asphalt, concrete or hardpacked crushed rock will allow for wheelchair access.

Family Friendly Play Spaces

One of the benefits of a community food garden is the opportunity for apartment dwelling families to have outdoor activity space. Though many apartment complexes offer designated play space, some do not, and families face fines for allowing their children to play in common areas (including parking lots).

Having a place to run, dig and be outdoors in a safe space, is just another healthy benefit of community food gardens.

Seattle Public Utilities (SPU) offers their publication "Growing Food in the City" in English and 18 other languages. You can find this resource by searching Seattle Public Utilities Food Gardening.



Garden Maintenance

Crop Rotation

Planting the same plants in the same location year after year encourages pests and disease, and depletes nutrients in the soil. To avoid these problems, it is necessary to rotate crops every three or four years. In other words, if you plant tomatoes in one spot, you should not plant them in the same spot for more than three or four years.

Crop rotation can be difficult to maintain in a community food garden, as plots are often planted by different people each season. Maintaining a card file with a map of each plot from previous seasons for the next gardener is a great way to track garden layout and ensure crop rotation occurs.

Fertilizing

Healthy soil is the foundation of a healthy garden! Keep in mind that any nutrients, fertilizers or herbicides should be applied in the appropriate amount and at the right time. Excess from over-application will wash away in runoff, presenting a hazard to water quality, especially if application is made right before it rains. More is not better when it comes to nutrients, so only apply the amount recommended by soil test results (see Pages 53 and 54 for details on KCD FREE soil testing). Plants will only use what they need.





Photo Credit: Sladek Photography

Garden Maintenance

Weeding

Keeping up with the weeding in a community garden is an ongoing challenge. If weeds are allowed to run rampant, they will outcompete the planted species and your garden will fail. In community gardens, individual gardeners are expected to keep their plots weed-free, and common areas such as walkways and around fencing should also be kept clear of weeds. Setting, posting, and enforcing rules for maintenance will prevent headaches down the road.

Many community gardens accept help from outside volunteers for clean-up days and service projects, but be sure to help well-meaning volunteers understand the difference between a weed and a plant you are growing intentionally! Labeling plants and close supervision of volunteers will help.

Garden Maintenance

Composting

Composting allows garden materials and other organic waste to be recycled and then added back in to the garden as nutrient-rich topsoil. It also reduces waste in to landfills, reduces the need for commercial fertilizers, and helps improve the soil's ability to retain water. A compost collection site is a great part of every garden, but note that perennial weeds and diseased plants should not be added, as they can be spread with the compost.

Healthy compost maintains an ideal balance between “green” (nitrogen-rich) and “brown” (carbon-rich) materials. As a rule of thumb, there should be one third green and two thirds brown. Too much nitrogen will produce a smelly, dense, slowly decomposing compost. When in doubt, add more carbon sources.

Carbon-rich matter includes branches and stems, dried leaves, peels, chopped or shredded wood, sawdust, corn stalks, coffee filters, conifer needles, egg shells, and straw.

Nitrogen-rich matter includes non-meat manures, food scraps, green lawn clippings, and green leaves. Meat and dog waste should not be added to compost piles.

Composting bins can be on-the-ground piles or enclosed turnable bins. Considerations include adequate drainage and maintaining proper temperature. Enclosed bins will produce finished compost sooner, due to the ability to turn the materials as well as the increased temperature. Enclosed bins are also ideal for use in urban gardens, as they keep pests such as rodents and nuisance wildlife out and reduce odor.





Garden Maintenance

Integrated Pest Management

Attracting beneficial insects, birds, and bats using natural repellants and practicing crop rotation are all ways to limit unwanted pests while reducing the reliance on chemicals. Bat boxes, bird feeders, and beehives can be installed. Planting marigolds and citronella, which are natural repellants, is a simple way to help control pests and beautify a garden at the same time. Keeping the garden free of standing water will also help prevent breeding of mosquitos.

Additional information:

The NRCS has published a great leaflet on Integrated Pest Management and Wildlife. It is available [here](#).

Detailed information can be found by searching WSU Extension Integrated Pest Management.

Harvesting & Year-End Wrap Up



EPaZote

Harvesting & Year-End Wrap Up

The most rewarding time of year for a community garden is perhaps harvest time, when everyone comes together to celebrate a successful season and reap the benefits of their hard work. Canning, freezing, drying, or dehydrating are great techniques for preserving foods grown in the garden for use in the off-season. Often community organizations offer classes in preserving home grown produce, which is a great way to end the season and keep the community engaged.

It is very important for the health of your garden to clean it up after the growing season. Leaving dead plants and rotting vegetables on your plot invites insects and fosters diseases, which can damage next year's crops. Always remove and compost the plants; make necessary repairs in the garden, such as fixing broken fences and replacing rotted boards; and conduct the required maintenance or winter storage routines for rain barrels and other facilities. And don't forget to clean and dry your garden tools before storing for the year.

As previously discussed, planting cover crops after harvest is a great strategy to protect the garden's soil over winter.

The end of the growing season is also a great time to do an evaluation of the past year's success. Use the off-season to survey the gardeners about their experiences, recruit new members, put together educational programming and collaborations, and plan for an even better season the following year.



More information and classes on food preservation can be found at [WSU Extension](#) and [Tilth Alliance](#) websites.

Resources



Get more resources and help:

<http://kingcd.org/community-agriculture/>



Browse a library of peer-reviewed publications, videos, blog posts and more:

<http://extension.wsu.edu/>

Become a Master Gardener:

<http://mastergardener.wsu.edu/>



Find more resources

<http://tilthalliance.org/our-work/urban-farms-gardens/>



Schedule a wood chip delivery

<http://getchipdrop.com/>



Find more resources:

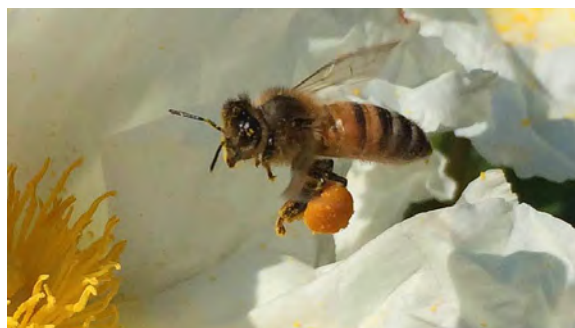
<http://botanicgardens.uw.edu/>



5 Ways to Support Pollinators & Beneficial Insects

1 Provide Native Plants

for Pollinators Native plants have been found to be four times more attractive to pollinators than non-natives, and many butterflies only lay eggs on native species. A true “butterfly garden” is one that includes native plants that provide nectar for adult butterflies and food for their caterpillars, including plants which flower at diverse times of year also supports pollinators. By planting a mix of annuals and perennials that bloom from early spring through mid-fall, you can ensure flowers in your garden most of the year and provide food for pollinators throughout their active seasons.



2 Re-Think Chemical Use

Before you spray, make sure that you truly have a pest problem! Many insects that visit gardens are harmless or even helpful to making plants grow. If you know that you have a pest issue, research alternative solutions by contacting your County Extension or Master Gardeners offices. If you must use chemicals, be mindful of your timing and only apply early in the morning before blooms open. Avoid spraying the flowers of the plants to help minimize exposure to toxins for adult bees and butterflies. Be mindful that any chemicals applied to plants can be consumed by hungry caterpillars.



Visit www.xerces.org for more information about pollinators and pollinator habitat.

3 Leave the Leaves

One of the most valuable things to support pollinators and other invertebrates is providing the winter cover they need in the form of fall leaves and standing dead plant material. Consider creating a sign to inform neighbors of your pollinator-friendly choices!

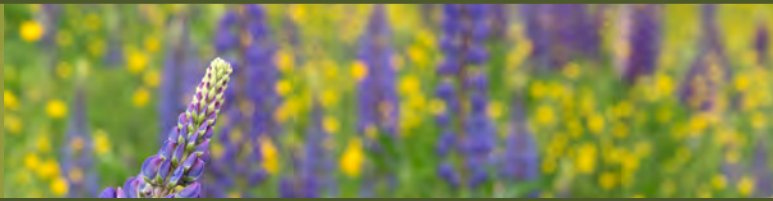
4 Re-Think Tillage

Just like raking leaves, tilling is an annual garden chore for most gardeners. It's what we have always done! However, tilling an area with hibernating pollinators could disturb or kill them. One of our most recognizable pollinators, the bumble bee, survives Washington's winter chill by burrowing only an inch or two into the ground. Winter is an especially vulnerable time for pollinators because it is too cold for them to be active. If you use tillage to reduce soil compaction, consider growing cover crops or only digging in exact planting areas.

5 Grow Cover Crops

Like leaves, winter cover crops of rye, vetch, and clover offer habitat and protection for the elements for pollinators. In the spring, flowering clover is an early source of nectar and cover crops prevent compaction, limiting the need for tilling. Make sure to refer to your soil test recommendations when making the decision to let cover crops flower. In the backyard garden, cover crops can be "chopped" with a spade or hand turned with less disruption to pollinator habitat than mechanical tillers.





NATIVE POLLINATOR MEADOW

WHY INSTALL A NATIVE MEADOW?

Our native bees are struggling and a major factor in the decline of native bees is habitat loss. Many native pollinators are plant specific and depend on native flower species for food and reproduction. By planting native pollinator meadows, you are providing crucial forage and habitat for our native bees and other pollinators. But bees are not the only ones who benefit from native pollinator meadows. Studies have shown that pollinator meadows and wildflower strips can increase farm yield and productivity by attracting more native bees and improving pollination rates.

Key northwest crops, such as berries, are dependent on pollinators. Bumble Bees are the most efficient pollinators and can even buzz pollinate with their wings.

WHERE?

You don't have to use your best land. You can fit pollinator meadows and wildflower strips into underused areas of your property such as buffer areas, field borders, hedge rows and fence lines. While it is ideal to place your pollinator meadow within easy foraging range of your crops it's not necessary.

PREPARATION + INSTALLATION

Preparation is the most important step in establishing a native pollinator meadow. The area needs to be properly cleared of weeds to reduce competition. The best pesticide free method is solarizing. For more details on this process you can request KCD's Native Pollinator Meadow Assessment and Installation Guide or visit Xerces.com. When installing the meadow (spreading seeds and possibly transplanting) the most important consideration is the time of year: spring and fall will provide the best climate.



Pollinator strip planted along fence line by Xerces



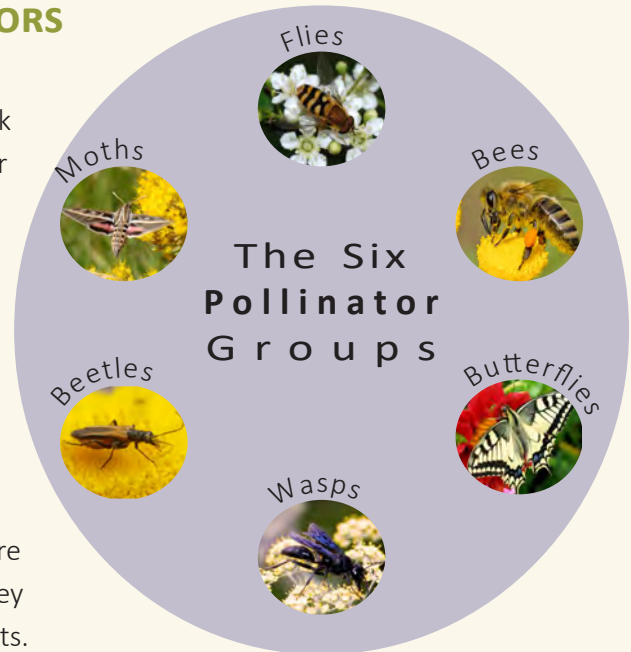
Pollinator strip being solarized by KCD at Sonju Community Orchard and Park



WHO ARE OUR POLLINATORS?



NATIVE BEES ARE IMPORTANT POLLINATORS

- Native bees pollinate \$3 billion of crops annually.
- Bumble Bees are warm-blooded allowing them to work in wet and cold conditions when honey bees and other pollinators are inactive.
- Native bees are more effective than honey bees at pollinating apples, cherries, squash, watermelon, blueberries, raspberries, tomatoes and more.
- Washington state has poor bee diversity but high bumble bee diversity: we have 600 native bee species and 19 bumblebee species. There are less than 50 species of bumble bees in all North America.
- Native bees tend to be plant specific making them more effective pollinators than generalist like honeybees, they are also less likely to pollinate invasive non-native plants.





WHAT DO NATIVE POLLINATOR MEADOWS NEED?

FORAGE

-  Different bees may be more attracted to different flowers, try and have at least three species in bloom at any time with different sizes, shapes and colors.
-  It's very important to provide forage in the shoulder seasons: spring and fall. Spring forage will aid emerging queens. Fall forage will support new queens preparing to overwinter. LONG LIVE THE QUEEN!

HABITAT

-  If you want to attract specific butterfly species, try and include their larval hosts in your plant selection. For instance if you want to attract the endangered Monarch butterfly try growing Milkweeds.
-  Grasses are crucial habitat: they provide winter nesting sites for bees and are larval hosts for butterflies. Try and include at least one native bunch grass or sedge in your mix; at the most grasses should make up 25% of plant mix.



BUILD A POLLINATOR NESTING BOX

The most common insect used by humans for the pollination of crops is the honey bee, which lives in a hive structure. However, there are many solitary bee species that also serve the role of a pollinator. These solitary bees do not live in a hive, but instead create their nests in the ground, in wood or in tunnel structures. You can help these pollinators thrive by creating your own pollinator box to mimic their natural nesting conditions.

Materials Needed:

- One 1"x6"x6' board
- One 1"x8"x8' board
- Scrap wood for the back
- Screws or nails
- Drill
- Safety goggles
- Materials to fill the box. These can be store-bought mason bee tubes, or 4x4 posts with holes drilled into it. You can also look for found items such as dried reeds or blackberry stalks.



Instructions:

1. Cut the 8x8 board to create the roof. You should have one piece that is 8" long and one piece that is 7.25" long.
2. Cut the 6x6 board to create the base. You should have one piece that is 6.5" long and one piece that is 5.75" long.
3. Nail or screw the two roof pieces together at a 90° angle. Be sure to pre-drill the holes to prevent the wood from splitting. Do the same for the base pieces. See fig. 1.
4. Nail or screw the base of the box to the roof. One side should be flush with each other, creating a small overhang for the roof on the other side. See fig. 2.
5. Cut the back piece. It should be approximately 7.25" square. Measure the back of your box to make sure the back piece will fit appropriately.
6. Nail or screw the back piece onto the box. See fig. 3.
7. Insert nesting materials into the box.
8. Sand all rough edges.
9. Hang box 3-5' off the ground, and wait for the pollinators to visit!



fig 1



fig 2



fig 3

General Facts

Block Placement: The most important factor when picking a location for your nesting box is considering if it will be protected from rain and dampness. A good place to hang a nesting box is against a wall with an overhanging eave. Hang your nest at least a few feet off the ground, and where it will receive light from the morning sun (facing east). This will help keep the larvae warm in the morning but cool in the afternoon.

How the Nest is Constructed: A female bee will build partitions to divide the tunnel into a row of cells. In each cell is a nectar and pollen provision and one egg.

Predators: Since woodpeckers will try to eat bee larvae, you can wrap the block with hardware cloth during the winter to protect the larvae. Be sure to remove the cloth before nesting begins. Another strategy is to overwinter the block in a cold shed, and rehang it in the spring.

Interior of a Tunnel Nest:



Maintenance of Tunnel Nests

Nesting boxes with tunnel nests need routine maintenance and replacement to prevent the buildup of parasites and diseases that affect the developing brood.

One problem nesting blocks can face is infestation from the fungal disease chalkbrood (*Ascosphaera* spp.). Bee larvae can become infested with disease spores which eventually penetrate the gut wall, which kills the larva. Pollen mites in the genus *Chaetodactylus* can also be problematic, because they feed on the pollen provisions that are meant for the larvae.

With appropriate management, many of these parasite and diseases can easily be minimized or avoided. The easiest way to do this is to replace the nesting components. Remove nest blocks and/or stem bundles and place them inside a dark bucket or box which is hung next to a new nesting block. The box should have a small $\frac{3}{8}$ " hole drilled into the bottom so that the bees can crawl out. As bees emerge from the old nest, they are attracted to the light of the exit hole and emerge to find their new nest hanging nearby. To ensure that all bee species emerge, leave the filled nest box inside the emergence box for a full year.

After the bees have exited the used nesting block, you can prepare it for re-use by re-drilling the holes and submerging it in a solution of one part bleach, two parts water for five minutes. If you are using paper straws instead of a nesting block, simply switch out the straws.



SOIL TESTING PROGRAM

Why Test Soil?

Whether growing forage for livestock, growing a vegetable garden, or maintaining an orchard or landscape, soil testing will help you to:

- ◆ Apply the correct amount of fertilizer for the plants you are growing.
- ◆ Prevent surface and groundwater from becoming contaminated by excess fertilizers.
- ◆ Ensure that soil nutrients and other conditions (such as soil pH) affecting plant growth are present in the right amounts.

Each resident in KCD's service area is eligible for up to five free soil tests, lifetime per address.

Additional tests: \$25 each.

TEST YOUR SOILS



KCD provides soil testing for all landowners in our service area.* Up to five (5) free soil samples can be submitted lifetime for each address. Additional tests can be purchased for \$25 each.

KCD encourages landowners to test soils regularly. We send your samples to a certified lab to test for the major nutrients N-P-K (nitrogen-potassium-phosphorus), micronutrients, pH, and organic matter. KCD staff will supply you with a packet which includes the results and information on interpreting the soil test report. Results are generally available within three weeks. We do not currently pay for heavy metals or other contaminants; please contact us for information about alternative tests.

* KCD's service area includes all cities and unincorporated areas in King County, except for the City of Enumclaw, the City of

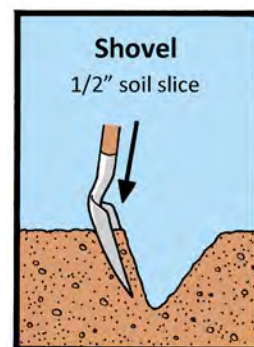
Federal Way, the City of Milton, the City of Pacific and the City of Skykomish.

See other side for instructions on how to take a soil sample and submit it to KCD.

How to Take a Sample

Avoid sampling when soils are saturated (after heavy rain) or within a few weeks after applying lime, fertilizer, compost or aged manure. You will need:

- ◆ A shovel, hand trowel or a soil probe
- ◆ A clean plastic container, such as a bucket
- ◆ Sampling bags (gallon-size zipper-style bags will work)



Take thin slices of soil approximately 1/2". It is easiest to take a slice if you first remove a v-shaped hole, as shown above.

- 1** Designate sample areas by what is growing there. For example, if you have a garden of mixed vegetables, that could be one sample area. If you have a pasture and a garden, take separate samples of each. If an area has varied characteristics, such as topography, soil moisture, soil type (sandy, clay, muck), or one area grows poorly, designate separate sample areas for each characteristic.
- 2** For each sample, take 10 to 15 sub-samples across the whole sample area. Be sure to get even coverage of the entire area. Take randomly located but evenly distributed sub-samples. A zig-zag pattern works for larger sample areas. Make thin slices of soils with a shovel or trowel; to a sampling depth between three and twelve inches of soil, depending on the crop and time of year. (See the table below for instructions.) Place the sub-samples in your clean container/bucket.
- 3** Thoroughly mix the 15 sub-samples and scoop out **THREE to FOUR POUNDS** of the soil and place into a bag.
- 4** Label the bag with your
 - ◆ Name
 - ◆ Five letters and/or numbers that will help you remember where the sample came from (such as PST1, GRDN1).



- 5** If you are taking more than one sample, repeat steps 2-5 for each area.

- 6** Mail or deliver the samples immediately. Soil nutrient levels continue to change even after a sample is taken, due to microbiological activity. It is critical, therefore, that this activity be stopped as soon as possible after sampling (within 12 hours).

If you are not mailing the samples that day, put the sealed samples in a refrigerator. If samples are over-saturated, put soil on a newspaper and air dry overnight in a cool location. The soil should have moisture similar to damp sponge.

- 7** Fill out the Soil Sample Information Sheet and mail or deliver samples to:

King Conservation District
Attn: Soil Sampling
800 SW 39th St,
Suite 150
Renton, WA
98057

Results are generally available within three weeks and will be e-mailed to you, or sent via postal mail.

Guidelines for Sampling Depth		
	Type of Crop	Sampling Depth
For samples taken in September and October	All samples	12"
For samples taken any other time of year	Established lawn & pasture	4"
	New lawn & pasture	6"
	Gardens	6"
	Trees & shrubs	8"
	Commercial crops	8"



URBAN GARDEN COVER CROP INFORMATION

A cover crop is grown for the sole purpose of being tilled back into the soil in the spring. A cover crop can be a grass, cereal grain or legume. Cover cropping provides multiple benefits and can be an inexpensive way to build better soil in your garden.

What are the Benefits?

1. More Organic Matter

A key component of healthy soil is the presence of organisms. When spring comes and a cover crop is plowed back into the soil, that material is consumed by bacteria, fungi and other organisms. The portion that is not broken down is what adds organic matter to the soil.

2. Improved Soil Structure

When soil is left unprotected from heavy winter rainfall in Western Washington, it is vulnerable to nutrient run off, erosion and compaction. Root systems of cover crops hold soil in place and help break up clay soils to allow for better air and water circulation. Cover crop foliage helps buffer the soil from compaction caused by pounding winter rain.

3. Increased Soil Fertility

If soil is left bare during the winter months, many valuable nutrients can leach out of the root zone by rainfall. As a cover crop matures, it begins to absorb nutrients left over from previous compost and soil amendment applications, incorporating those nutrients into the plant tissues. Nutrients are safely stored in the cover crop until spring when it is cut and tilled back into the soil. As it begins to decompose, those nutrients will once again become available for new plantings.

King County backyard gardeners who have had a soil test are eligible to receive a sample of **FREE** cover crop seed (while supplies last). The sample package contains **Crimson Clover** and **Yellow Field Peas** (both are legumes that help fix nitrogen in the soil) that can be grown together or separately.



4. Suppressing Weeds

Cover crops can help suppress growth of difficult-to-manage weeds. It is important to till in the cover crop before it goes to seed.

5. Establishes Winter Habitat for Native Beneficial Insects

Cover crop foliage provides important winter habitat for beneficial insects. Clover and pea flowers will provide an early spring food source for pollinators.

How Do I Plant Cover Crop?

Cover crop should be planted in September through mid-October to allow for germination before cold weather sets in. After your last crops have been harvested, turn the soil under and rake it smooth. The smaller the cover crop seed, the smoother the soil should be. Hand broadcast your allotted amount of seed (sow the Crimson Clover sparingly and the Yellow Field Peas generously). Be sure to cover the seed with ¼" of soil to protect from hungry birds and to keep it from drying out. You may need to water the seed if the weather is dry after planting.

When Do I Turn the Cover Crop into the Soil?

The seed will germinate and grow during the fall months, from September to December. During the colder winter months, the growth will slow or stop, but will start again as days get longer and the weather warms up in the spring.

Do not allow the cover crop to go to seed! In early March when the soil has begun to dry out, use a shovel to chop the shoots and work them into the top 3 to 5 inches of soil. Wait at least 10 days to allow shoots to begin decomposing before planting vegetable crops.

Please send pictures, observations and questions of your cover crop planting to info@kcdcommunityag.org. We would love to share your experience with other gardeners!

What if I Have Crops that I Want to Over Winter?

You can sow cover crop seeds in the bare areas of your garden and leave crops such as garlic and kale to over-winter.



Mixed Sowing of Clover & Peas



Photo Credit: WSU Extension

For more information
call 425-282-1933.



COMMUNITY AGRICULTURE

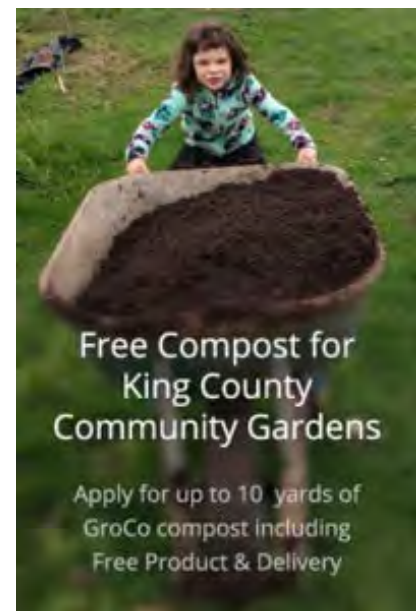
King Conservation District offers expertise and resources to schools, individuals, non-profits, and churches, to help expand access to healthy food while teaching important lessons on soil health, water quality, stormwater mitigation, water catchment, habitat enhancement, and natural resource stewardship in the urban landscape.

RESOURCES AVAILABLE

- **FREE Soil Testing** – King Conservation District provides basic soil tests for all residents and municipalities in our service area. Soil test results include macro nutrients, pH and CEC. More information can be found at www.kingcd.org on how to take and submit a soil sample.
- **Community Agriculture Map** – KCD's Community Agriculture Map (is a way to learn about growing opportunities in your area. It also is an opportunity for existing and future community food projects to be identified and located by volunteers, donors, or other partners. Visit www.kcdcommunityag.org to find a garden near you.
- **Seed Money Funds** – KCD has micro-capital startup money available to assist 5 community garden projects annually through 2019. These resources are available to help create demonstration gardens to showcase the vision and community involvement of a proposed full-scale community garden. Funds may be used for site plan design, implementation of an on-site demonstration garden (including materials for beds), garden tools, plant stock, marketing materials, signage, and community outreach events. (Funds may not be used for acquisition of land.)



- **Hügelkultur** – This ancient permaculture practice builds soil and creates increased and elevated planting area while keeping compostable materials out of landfills and burn piles. Hügelkultur mounds are suitable for urban, rural, in-ground and container applications. KCD offers hands on technical assistance to groups and organizations interested in creating hügel mounds. More information, including upcoming events and a Hügel Hunt map of sites across King County, can be found at www.kingcd.org.
- **Volunteer Coordination** – KCD can work with its Community Agriculture partners to facilitate volunteer efforts for community garden projects. Please contact Melissa Tatro about your project and volunteer needs.
- **FREE Cover Crop Seed** – KCD recognizes the importance of cover cropping to improve soil health. Cover crops protect soil from erosion and leaching of important nutrients and buffer against soil compaction during winter rains. Cover crops suppress weeds and provide habitat for native beneficial insects. KCD will be offering a sample of cover crop seed to backyard gardeners who have had their soil tested (enough seed to cover crop two 4 x 8 garden beds) . More information and locations of cover crop seed pick up sites will be available at www.kingcd.org in Summer 2018.
- **Workshops/Speakers** - KCD offers workshops and speakers available to community groups, garden clubs and classrooms on topics ranging from soil health, hügelkultur, native pollinators, and seed saving. Contact Melissa Tatro to schedule a speaker for your event.
- **Compost for Qualifying King County Community Gardens** – KCD in partnership with King County Loop® Biosolids invite King County community gardens to apply to receive FREE delivery and product of up to 10 yards of GroCo compost (made with Loop®). Qualifying community gardens help meet the needs of underserved communities by improving access to healthy local food, parks and natural areas; help preserve healthy natural environments and create strong, vibrant neighborhoods.
- **Plant Starts** - Working with volunteers, KCD is helping to grow a taste of home by growing plant starts of culturally relevant and hard to find foods for refugee and immigrant gardeners.



KCD strives to meet our equity and social justice goals by supporting projects that improve access to local food for underserved communities that include immigrants and refugees, at risk youth, low income, USDA identified "food deserts", tenant/non-land owner farmers, transit-dependent and elderly.



For More Information Contact:

KCD's Community Agriculture Program Coordinator
425-282-1900



BUILD A WOODEN RAISED GARDEN BED

Instructions to make one 4'x8' raised garden bed. Alter dimensions as needed to make other sizes.

Materials Needed:

- One 4"x4"x10' UNTREATED post, ask lumber yard to cut into four 30" pieces
- Two 2"x12"x12' FIR lumber, ask lumber yard to cut at 4' so you are left with one 4' piece and one 8' piece per board
- Small box of 3" screws
- Impact driver and drill
- Posthole digger
- Soil mixture (1/3 compost and 2/3 topsoil)
- Landscaping fabric
- Safety glasses



Instructions:

1. Lay out two of the 4x4 cut posts on level ground. Lay one of the 4' fir boards on top of them, making sure the board is flush with the posts. See fig. 1 for more details.
2. Pre-drill holes where the screws will go, then attach the board to the 4x4s. Pre-drilling the holes keeps the wood from splitting.
3. Repeat steps 1-2 for the other 4' side board and the corresponding posts.
4. Now that you have your side pieces, you can begin to attach them to the 8' boards. Place the two sides you have just constructed on their short sides, so that the 4x4 is resting flat on the ground. Then place the 8' board on top and attach. See fig. 2.
5. Rotate the bed so that you can attach the final long board. You should now have completed the frame for your raised bed.



fig. 1 : layout of the 4' side board

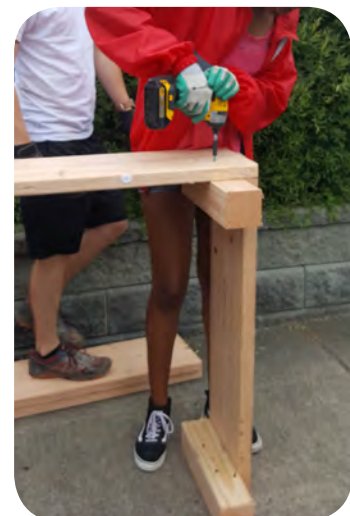


fig. 2: placement of the 8' boards



Instructions contd.:

6. Carry the empty raised bed to a location where you would like to have your garden. Make sure the area is free of grass and weeds. One easy way to remove grass is to use a sod cutter, or you can do it with a shovel.
7. Mark the locations where the 4x4 posts touch the ground using spray paint. Remove the empty bed and use a post-hole digger to make a hole for the posts to sink into.



fig. 5: digging the post holes

8. Place the bed in the post holes. When the bed is properly placed, there should be no gaps between the edge of the boards and the ground.
9. Use landscaping fabric to line the inside of the raised bed to prevent weeds from growing up and into the garden.



fig. 6: laying out the landscaping fabric

10. Fill your raised bed with the compost and topsoil mixture.
11. Plant your desired vegetables and seeds in the garden. Your raised bed is now complete!



fig 7: filling and planting the bed



BUILD A STOCK TANK RAISED BED

Materials Needed:

- Galvanized stock tank. These are sold at most feed stores.
- Drill with a bit for metal
- Treated 2x4s. You should have enough for four skids.
- 3" screws
- Measuring tape
- Safety goggles
- Fill bed with 1/3 compost and 2/3 topsoil



Instructions:

1. Begin drilling holes into the bottom of the stock tank. Be sure to use a drill bit designed for metal, and wear your safety goggles. Drill 25 -30 holes.

To stop the drill bit from overheating, place a small pool of water or oil at the location where you intend to drill the hole. This will also prevent metal shards from flying up.



Step 1

2. Cut the treated 2x4s so that their length is approximately 1-2 inches shorter than the width of your stock tank. Cut four skids per tank. When done, place them along the bottom of the tank equidistant from each other.
3. Drill three screws into each board to secure the skids. It is easiest to place the skids on the ground, lay the stock tank over them, and drill from the inside of the tank.



Step 2

Your stock tank is now a raised bed. Congratulations! To save on soil, you can fill the tank 2/3 full of loosely stacked wood, rocks, bricks and leaves.



Step 3





CREATE A MILK CRATE GARDEN

Milk Crate Gardens are an easy introduction to gardening. They are mobile, productive and easily maintained.

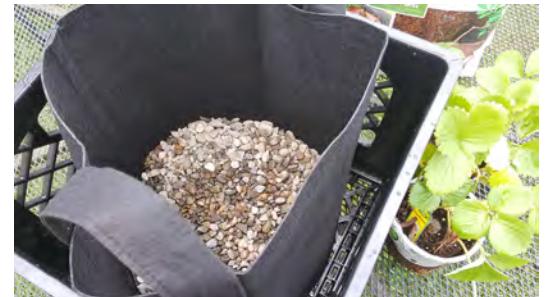
Materials Needed:

- Milk Crate - either single or double
- One or Two fabric garden bags (can be purchased at 247Garden.com)
- Gravel for drainage
- Potting Soil (seed starter mix that includes perlite or vermiculite works best)
- Seeds or Starter Plants



Instructions:

1. Gather your materials. Put 2-3" of gravel in the bottom of the fabric garden bag for drainage.
2. Fill the bag with lightweight potting soil (seed starting or propagation mix works best). Each bag will require approximately 6 qts of soil and should be filled to the top to allow for eventual compaction.
3. Plant seeds or plant starts.
4. Water thoroughly.



Plants that work best as Milk Crate Gardens:

Lettuces
Kales
Herbs

Carrots
Tomatoes
Eggplant

Strawberries
Peppers
Green Onions



Plants that **DO NOT** work as Milk Crate Gardens:

Corn
Pumpkins

Squash
Cucumbers



Instructions contd.:

6. **IMPORTANT:** Daily observation is crucial to determine watering needs! If milk crate garden is kept in full sun, daily watering may be necessary.
7. Milk Crate Gardens may also benefit from periodic application of nitrogen (either liquid or granules).



Milk Crate Gardens can be grown on patios or balconies and are light enough to move to chase the sun.



For an example of a large scale milk crate garden operation, check out Green City Growers Modular Milk Crate Farms at Fenway Park and Brandeis University.



GreenCityGrowers.com

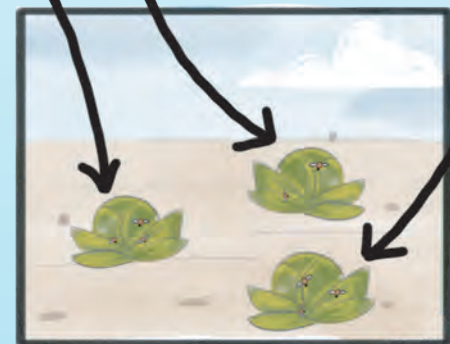
Trap Plants

☹️ Without trap plants

1



2

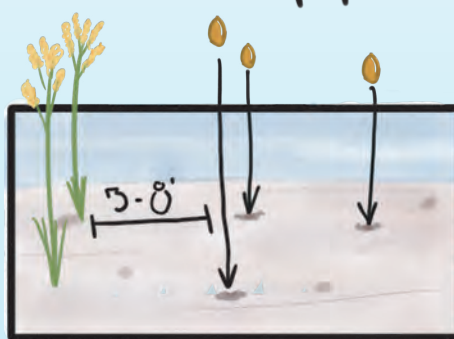


3



😊 With trap plants

1



2



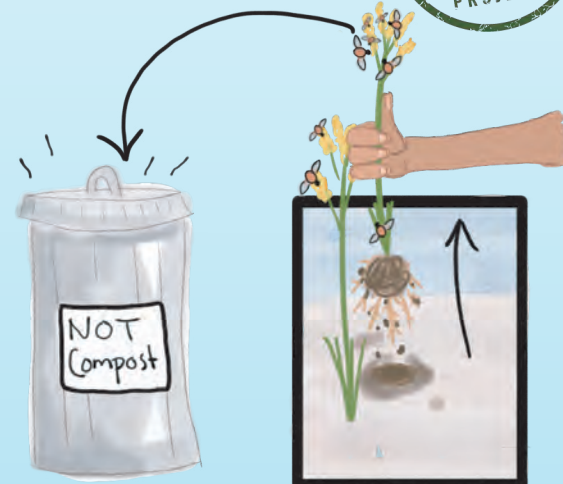
3



Trap plants function as decoys. They provide another food source / home for pests, keeping them away from your crops. They work best if you plant them before your crop, and 3-8 feet away. If they become infested you can remove the trap plant and kill the pests, preventing them from spreading.



4



5



Common Pests and Associated Trap Crops

Crop Plant

Target Pest

Trap Crop



Tomato



Tomato
hornworm



Dill + Lovage



Carrot



Carrot Fly +
Thirps



Onion + Garlic



Cabbage



Aphid



Nasturtium



Strawberry



Lygus bug



Mustard +
Alfalfa



General Veg-



Slugs



Chervil



Garlic



Thirps



Marigold +
Basil



Linking You to Conservation and Preservation Today For Continued Bountiful Results Tomorrow

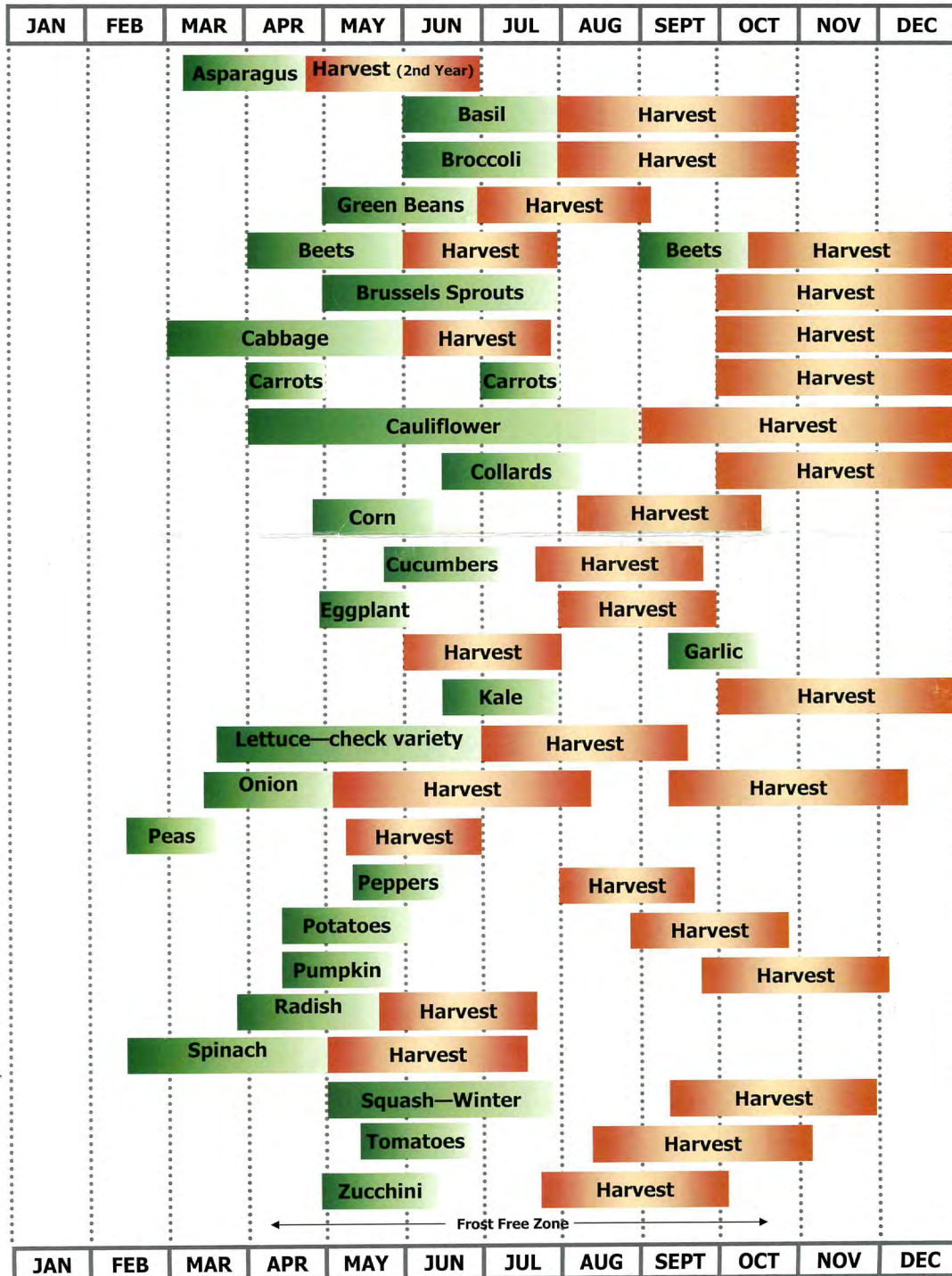
PLANTING CALENDAR BASED ON PUGET SOUND BASIN

USDA ZONE 8

HARDINESS 10° - 20° F

Plant Seeds or Transplant

Harvest



The Washington State Conservation Commission, Office of Farmland Preservation, and conservation districts across the state can help you with:

- farmland preservation • conservation easements • connections to marketing information •
- technical assistance with farm practices • plus additional helpful information •

Find us at: www.scc.wa.gov

TRELLISES AND VINING PLANTS



THREE TYPES OF VINING PLANTS

TENDRIL



CUCUMBERS, PEAS, SQUASH

These plants attach themselves to supports with vining tendrils, because they grow vertically and horizontally they are best supported by grids. They prefer natural materials such as wood and twine.

TWINERS



POLE BEANS, GRAPES

These plants wrap their stems directly around supports. They are not picky and will grow on almost anything. Some of them will grow indefinitely, so you may want to pinch the top once it reaches the top of your trellis.

SCRAMBLERS



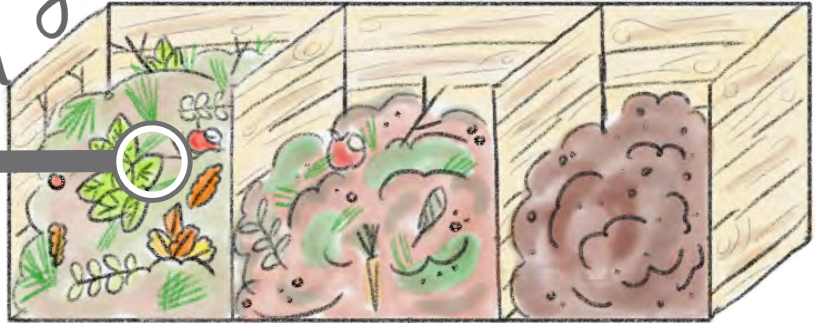
TOMATOES, SWEET POTATOES

Scramblers would naturally prefer to grow on the ground. By training them to grow vertically you increase fruit production and use up less space. These plants need to be trained to grow on trellises by physically attaching them with string or special clips. Be careful not to attach them too tightly or it may choke the plant as it grows.

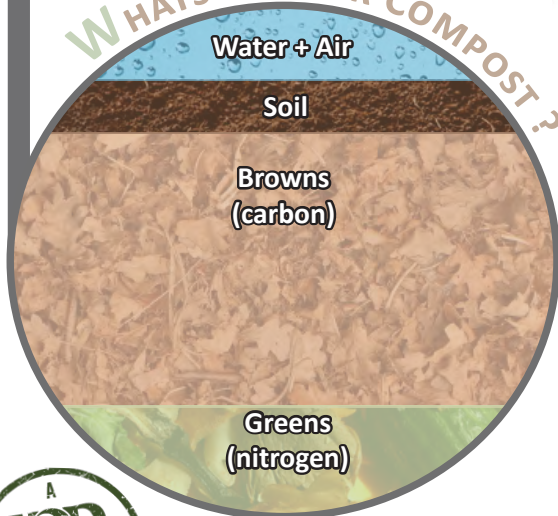
SUPPORT	WORKS WELL FOR
Stake 	peas, beans, tomatoes, nasturtium
Cage 	peas, tomatoes, peppers
Tripod 	peas, tomatoes, peppers, nasturtium, hops
Teepee 	pole beans, peas, hops, nasturtium
A-frame 	pole beans, hops, tomatoes, cucumbers, nasturtium
Flat trellis 	peas, beans, hops, cucumbers, small melons
Fence trellis 	peas, tomatoes, grapes, squash, cucumbers, small melons, hops
Arbor 	hops, grapes, nasturtium, small melons

Photo from: <https://www.custommade.com/blog/vertical-gardening/>

3 Bin Composting System



WHAT'S IN YOUR COMPOST?



BROWNS (CARBON)



GREENS (NITROGEN)



WHY TURN?

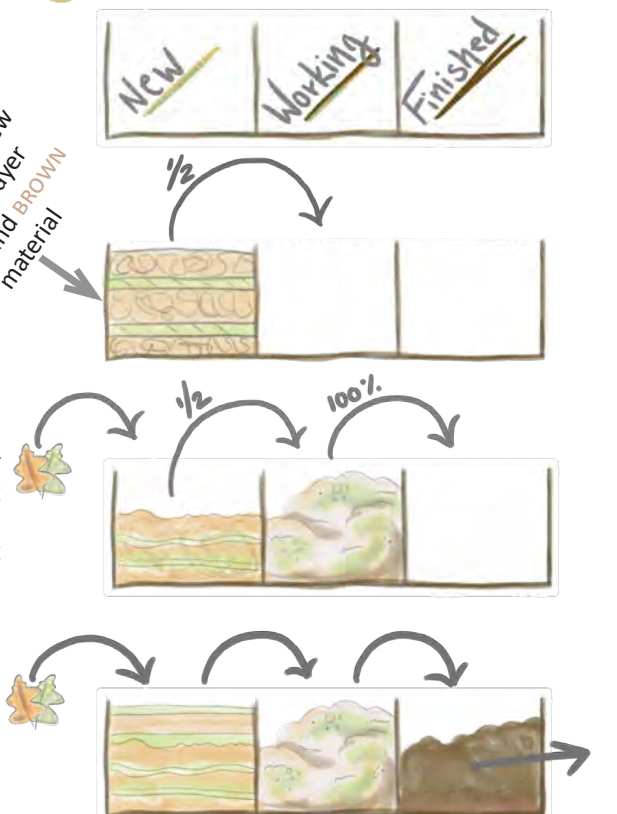
- Aerates the pile
- Equally distributes material
- Removes odor
- Speeds up decomposition

WHEN TO TURN?

Turn piles whenever the center becomes hot, or once they start to cool down. For the most rapid composting turn the piles at 140 - 150°F / 60 - 65°C.

COMPOST PILES NEED TO STAY MOIST, this helps break down the materials. Water your pile when you mix and/or add material. Squeeze a handful of compost, your hand should feel moist, similar to a wrung out sponge. If your hand is dripping wet there is too much water.

Three Bin Compost



This publication is based on the *Urban Agriculture Conservation Resource Guide* created by the Montgomery County Conservation District (Pennsylvania) and GreenTreks Network, Inc. The original project was funded in part through a grant from the National Association of Conservation Districts (NACD).

King Conservation District's *Community Agriculture Conservation Resource Guide* was compiled in 2018 by Melissa Tatro, KCD's Community Agriculture Program Coordinator with help from AmeriCorps members Hannah Klein and Maggie Harger.

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