Sustainable Vegetable Gardening

Texas A&M AgriLife Research | Extension

Water University

Sustainable Vegetable Gardening

Edible landscapes put us in touch with the land on which we live, the people around us, and the food we eat. You might be interested in incorporating vegetables into your existing landscape; maybe you've considered transforming a section of your property into a vegetable garden. No matter who you are, there is a style of vegetable gardening to meet your needs, suit your taste, and capture your imagination while conserving water. You can be a productive steward of our most precious resources by utilizing water-efficient methods to grow your own food. This guide will help you to reduce your water footprint by teaching you to conserve and protect the resources associated with bringing vegetables from your garden to your table.

Challenges to gardening in Texas

- Extreme temperatures
- Air and soil temperatures
- Sunlight quantity and quality
- Weed pressure
- Pests
- Insects and diseases
- Water constraints

There are many ways to overcome the gardening challenges of Texas' climate and soil. Planning ahead and designing your landscape with sustainability in mind will give you the best chance for a successful and productive vegetable garden.

Location

Many times the vegetable garden is allocated to areas of the landscape where it is out of the way or out of sight - hidden because it is thought of as unsightly. This thought process can create problems.

Too little light

Most fruiting vegetables do best with 8+ hours of sunlight. If you tuck them in a corner of your yard that receives less, you might not get as much or any production!

The best fertilizer is the gardener's shadow

The more time you spend in your garden, the greater the chance you will notice a nutrient deficiency, a pest or disease issue, or a watering issue before it gets out of control and becomes a problem. Pick a prime spot so you spend more time there.

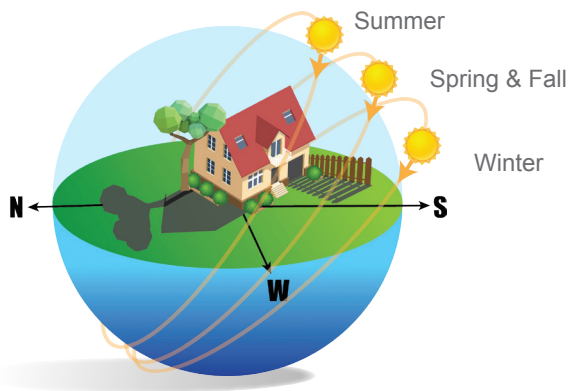
Wasted produce

The farther away your garden is from your kitchen, the less likely you are to harvest what you grow. You might even miss harvesting some of your favorite veggies at their peak. It's convenient to walk right outside to grab the ingredients for a meal or cut fresh herbs to spruce up a dish.

It is also important to build your vegetable garden in an area that has well-draining soil. For Texas areas that have poor-draining clay soils, consider amending with compost, expanded shale or a combination of soil amendments (see pages 3-4). Raised bed gardening also provides a solution to poor-draining soil, allowing gardeners to bring in amended soil or garden soils better suited for vegetable production.

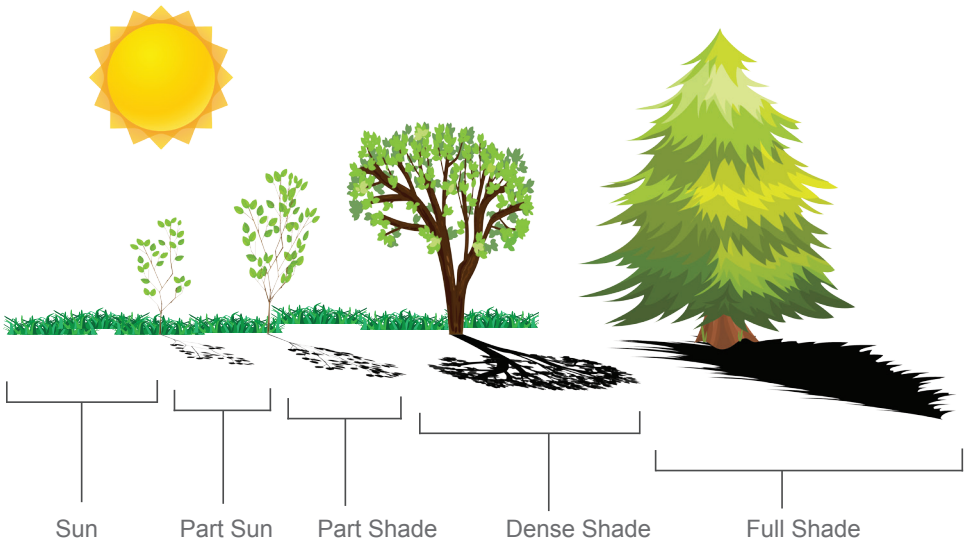
The sun's seasonal position at noon

Pay attention to sun positioning and to where light will fall in your landscape at different times of the year. Know your vegetables' light requirements and position your garden accordingly.



Understanding Light Conditions

Before you plant, read the light requirements on your seed packet or plant tag to learn what your plant needs. Compare those needs with this graphic to help you gauge the light conditions in the different areas of your landscape.



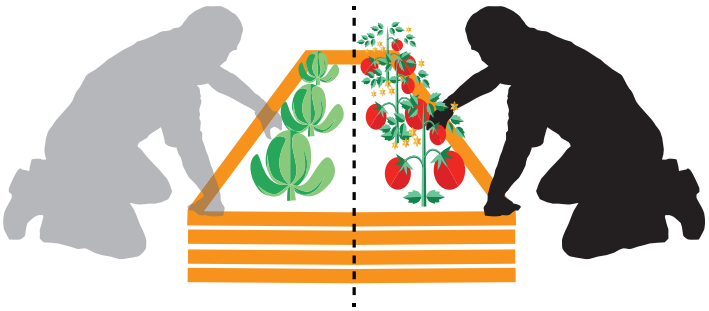
Sizing and Building

Vegetable gardening is not hard, but a few simple practices can significantly boost success. Each person is different, and each landscape has unique characteristics, which is why your garden should be designed to meet your needs as well as the needs of the vegetables that you want to grow. Design for beauty, as well as function, to make your vegetable garden more inviting for you, your family, and your guests.

Do not be intimidated to start your garden, and do not be afraid to keep your garden space small until you get the hang of it.

The size of your planting space should be based on the number of vegetables you plan to plant and the spacing requirements of each type. Consult your seed label or plant tag for this information.

Double reach beds are built to ensure that the gardener can reach any area inside the planting area without having to step into the bed. This allows for easy harvest and weed removal while helping to reduce compaction in clay soils. The size of your planting areas should also be designed to meet the specific needs of the vegetables. Pay close attention to your plant tag or seed packets, and follow the planting guidelines so your vegetables have adequate spacing. Vegetables planted too close together can experience increased competition for light, nutrients, water and air, leading to decreased or lower quality production!



The illustration shows how to construct a double reach bed to ensure easy access to all your plantings

Materials

A variety of materials work well for building or bordering vegetable beds. Build planting areas in lengths, heights, and widths that are functional, convenient, and aesthetically pleasing.

Wood

Stone

Metal

Soil

Always consult your plant tags and seed packets for best practices in caring for your vegetables.

Growing vertically

In urban environments and other areas where space constraints can provide obstacles to vegetable gardening, consider vertical growing options like a trellis for vining vegetables like beans, squash, and even tomatoes.

Summary

Design your garden so it's manageable for you to work in (and harvest) and so your plants have adequate spacing. Grow vining varieties vertically to save space in urban areas.

Water

Plant the water first

This might be the most important thing to remember: plants need water, but not too much, and some need more than others. Vegetables can get much of the water they need from rainfall in parts of Texas (depending on the area, year and season). Irrigation should only be applied to supplement a lack of rainfall. Minimize water waste and reduce fungal diseases by avoiding vegetable watering when there is already sufficient soil moisture.

Conversely, it is important BEFORE planting or sowing seeds to plan for supplementing rainfall with irrigation during dry times. This might be as simple as locating your outside faucet and hooking up a water hose and hose-end sprinkler that will reach. Soaker hoses work well, too, but have their limitations when it comes to durability.

There are also simple and effective ways to convert your outdoor faucet or existing sprinkler system to drip irrigation for your vegetable garden. Drip is the most effective irrigation method as it applies water directly to the root zone, minimizing water loss.

Drip irrigation setup

Before you Plant: Soil Preparation, Amendments

A number of amendments can be added to your soil to ensure the richest growing environment for your plants. Soil amendments can improve a number of planting bed characteristics like drainage, soil fertility, and pH levels. Two of the most common and helpful amendments for improving Texas soils are compost and expanded shale.

Compost is a nutrient rich soil conditioner consisting of broken down organic material. Incorporate or top-dress ½" to 2" of compost into the soil to improve drainage while maintaining your soil's water-holding capacity. Compost:

- Improves soil texture
- Contains macro and micronutrients
- Neutralizes pH
- Increases water holding capacity
- Reduces water evaporation

Expanded shale is a porous, lightweight aggregate with the ability to improve drainage in clay soils and hold moisture at the same time. Expanded shale is most effective as incorporated into soil when establishing a new planting bed. Add up to 3" then till or mix in thoroughly to a depth of 6" with a shovel or spade.

Compost

Expanded Shale

Mulching

Applying mulch around your planted areas is crucial to a successful garden. A number of natural materials work well as mulch. Hardwood, cedar, cypress, and pine straw mulches are all strong options. Water University recommends between 2" and 4" of mulch for most applications. Be sure to taper off near plant bases to avoid fungal problems and other pest issues.

The benefits of mulching are many. They include:

- Increased water absorbing capacity
- Increased water holding capacity
- Reduced water evaporation
- Reduced erosion
- Weed control
- Soil temperature moderation
- Increased soil nutrition as mulch breaks down

Don't guess, soil test!
One of the best methods for evaluating your soil is to collect and mail a soil sample to the Texas A&M Soil Testing Laboratory. Step-by-step instructions for submitting your sample are available at http://soiltesting.tamu.edu. For as little as $10 per sample, you will receive a detailed analysis of your soil and recommendations on how you can improve soil fertility.

soiltesting.tamu.edu

Soiltesting.tamu.edu is your one-stop shop for everything you need to get your soil sample submitted to Texas A&M AgriLife scientists for testing.

Planting your Vegetables

So, what are you going to grow in your vegetable garden? There are a number of factors that come into play for becoming a successful vegetable gardener. Planting and harvesting your vegetables is the fun part!

Plan ahead
Sometimes, certain heat and drought tolerant varieties of your favorite veggies are in high demand. If you are buying from a local nursery or online seed catalog, buy early before they sell out!

When to plant
Many people focus on spring and fall gardening, but in Texas there are ways to "stretch the season," growing almost year round using cold frames, shade cloth, low tunnels or floating row covers. Check out AgriLife's spring and fall planting guides, or consult local gardening calendars in Texas for advice on when to plant.

What to plant
Grow what you eat! By focusing on what you and your family like to eat, you can make sure you are making the best use of your time, money, and space in the garden. You might even save a little money at the grocery store! Don't be afraid to try new things as well!

There are quite a few vegetables well adapted to Texas that are delicious, but underutilized, on our plates! Try growing herbs and even edible flowers, too! The varieties of vegetables that have shown to do well in hot, dry climates can have more success during the summer months! Other varieties have shown to be productive in Texas in the cooler months, as well. To get started check out AgriLife's vegetable variety selector online.

Planting seeds
Start warm-season vegetable seeds off in a south facing window or greenhouse 4-8 weeks before the danger of frost has passed.

Web Resources

Visit tinyurl.com/aggieplantingguide for a complete planting schedule for Texas.
Visit tinyurl.com/aggievegselector to help you figure out which vegetables work best in your garden.

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Developed in cooperation with the Water Efficiency Network of North Texas
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