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Tips for a Successful Vegetable Garden©

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As with any undertaking, successful vegetable gardening is directly related to planning and preparation. If you follow some simple steps, you too can have an abundant harvest! Here are a few tips to get you off on the right foot. Whether you are a new Tucson gardener, or simply looking for some new ideas, we hope to give you a helping hand.

Amendments

Proper soil amendment is the key to a successful vegetable garden. Most vegetables prefer slightly acidic soil, and Arizona soil is naturally alkaline. Peat moss is the best amendment as it retains the most moisture and nutrients when water and fertilizer are applied. Additionally, peat moss is naturally acidic. However, peat moss should not be used in heavy clay soils as it will bind the soil more and possibly decrease drainage rather than improve it.

Shredded mulch should be used to improve and amend heavy clay soils and resolve drainage issues. Coir mulch is slightly acidic to neutral, so shouldn't have much effect on the pH of your soil. Redwood mulch is a richer soil amendment than pine mulch; both are acidic and will help neutralize the alkalinity of the soil. Good compost would be an excellent choice as well, used in addition to or instead of peat moss. Compost is plant material that is still in the process of decomposing and therefore releases its nutrients into the surrounding soil.

Humic acid (Soil Conditioner) is produced by the microbial degradation of organic plant matter. It provides natural carrier compounds that transport nutrients to the plants. In the case of heavy clay soils, it breaks up compacted soil, improving water and nutrient uptake. Sandy soils are enhanced by the addition of organic material, which improves water retention and prevents leaching of essential nutrients.

Steer manure is discouraged as a vegetable garden amendment because of the high salt content and the possibility of "burning" the plants. If you can smell it, then it can burn your plants. Applying manure can also result in radish and carrot skin sloughing. If you do decide to amend with manure, it is recommended you wait 2-3 weeks before planting anything in the garden to lessen the risk of burning. Finally, manure has a tendency to contain a large

quantity of weed seeds, as most cattle graze on variety of grasses. One important point to keep in mind is that too little amendment is actually worse for your vegetables than adding no amendments at all because it locks up the available nitrogen in the soil creating a zero-nutrient effect. At least 2 inches of amendment should be added and worked into the top 6-10 inches of natural soil. The soil should be turned over several times to achieve a thorough mix. The addition of fresh amendments each planting season is recommended to keep your soil rich and full of nutrients. A general rule of thumb is that you cannot apply too much organic matter to your garden with the exception of manure, as long as it is turned in properly.

Fertilizers

Organic fertilizers are preferred for vegetables, as they will release nutrients to the soil slowly. This will result in more productive plants and less loss of nutrients than fast releasing nutrients that will not be absorbed by the plants and may be leached from the soil. It is important to achieve the right balance for the overall plant health.

Nitrogen (N) is the #1 nutrient for plant growth and is essential for vegetable growth. Too much nitrogen results in quick growth but weaker plants that are more susceptible to insects and disease. A vegetable fertilizer should have a nitrogen number between 5 and 10.

Phosphorous (P) is essential for root, flower and fruit growth and development. The phosphorous number can range anywhere from 4-15.

Potash (K) is important for overall plant health but does not need to go much higher than 5 for vegetables.

Soil sulfur, while not a fertilizer, is also recommended as an addition to our soil. Sulfur helps to lower the pH, improve drainage, and help protect against soil-borne diseases. The recommended application rate is 5 pounds per 100 square feet of garden area.

Greensand is typically used as a source for potassium. However, it also contains iron oxide, silica, phosphoric acid, magnesia and 22 other trace minerals. It helps to provide some of the micronutrients your garden may not be getting from fertilizers.

Organic fertilizers can be applied to the soil at the same time as the amendments and you can plant the same day. Most granular organic fertilizers need to be applied once every 4-6 weeks. Liquid fertilizers need to be applied once every 2-3 weeks.

Ammonia-based fertilizers need to be left for 2-3 weeks in the soil before planting. During this time it is possible to lose some of the nitrogen through leaching. Granular chemical fertilizers (ammonium phosphate, etc.) need not be applied more than once every 6-8 weeks while water-soluble (Grow-More, Miracle Gro, etc.) should be applied once every 7-10 days. Always read the label for specific application rates.

Beneficial Insects & Organisms

Earthworms are a great addition to the garden and do wonders for your garden soil. However, earthworms alone do not make great soil. They need to have a rich garden bed high in organic materials. They then work to maintain that rich soil. When adding earthworms to your garden, you should also add earthworm castings to your soil to help them get a good start.

Beneficial Nematodes are microscopic worms that can be added to your garden soil. Nematodes, when released into the garden bed, they then live in the soil and feed on the larvae of crane fly, fleas, root weevils, grubs, cut worms, borers, gnats, and a wide range of other pests. The good news is that they leave hard working worms alone and they don't harm birds, pets, or humans.

Mycorrhizae (endo & ecto) are symbiotic fungi that colonize plant root systems and allow for more direct access to, and absorption of, various nutrients and water. This enables the plant to grow up healthy and strong, with a hardy root system. The fungi enable the feeder roots to tap into a greater volume of soil and more effectively extract nutrients such as nitrogen, phosphorous and zinc that might otherwise be bound up in poor soils. Many organic fertilizers contain Mycorrhizae in the mix as it is so beneficial. The fungi themselves benefit as well because they derive nutrients from the plant-generated carbohydrates, so everybody's happy!

Seeds vs. Seedlings

This topic is very subjective, so we're going to chime in with our two cents and you can decide what works best for you.

Seeds are a good choice because they are economical. In addition to being economical, in general most plants that come up from seed tend to be more acclimated to your climate conditions. This results in a stronger plant. Some crops do better from seed; root crops such as beets, radishes, turnips, carrots, etc. should be planted from seed and not seedlings. If grown in nursery pots, unless the pot is very tall and slender, the tap root of the vegetable gets broken in transplant (or doesn't form properly) and the vegetable cannot grow. Corn comes up from seed so quickly and easily that there is no need to buy seedlings. The drawback to planting from seed is that the timing can be critical. You want to get an early start so that your seedlings get established before harsh weather arrives (in Tucson, this can mean extreme heat OR cold). However, if you start too early, the same temperature extremes can cause a failure to germinate. You can prevent this by starting seeds indoors, which can be time consuming and decreases the acclimation of the plant.

Seedlings are a good choice because you know what you are getting. You start with a nice established plant and a head start on the season. If you are late getting your garden beds prepared, seedlings are also a way to get a crop even when it is too late to plant from seed. If you have had a hard time getting plants to start from seed, due to damping off or other causes, plants are the way to go. Seedlings also make sense when you have a small space and you want to try several varieties without having a large quantity of each plant. You can pick and choose one or two of each kind and stay within the confines of your area without limiting your choices.

Whichever way you choose, we wish you much success and a bountiful harvest.