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Helpful Tips and Setting Realistic Expectations of Vegetable Gardens

Use the following industry data and best practices to get the most out of your vegetable garden.

The Challenge: With each passing year, vegetable garden production should improve as the soil biology becomes more active and plentiful. While raised box vegetable gardens are generally easier to maintain, compared to in-ground gardens, there are a couple of factors to keep in mind: irrigation and fertilization. Consider large box vegetable planters as though they are very large containers. Anyone who has gardened in containers knows they require due diligence when it comes to irrigation. With their limited space and heightened exposures, containers often dry out quickly and require irrigation more frequently. Because of this additional irrigation, nutrients present in the soil in raised vegetable gardens and containers can inadvertently be leached out of the soil before they are fully absorbed by the plants. Nitrogen in particular is very susceptible to leaching due to its transient nature. When soil temperatures are cooler, biological activities are slowed, and naturally replenishing nitrogen can be hampered. Cooler soil temperature is particularly challenging with raised beds due to their exposure on all four sides. In addition, heavy rains will further complicate matters by cooling the soils further. This issue is typically solved naturally with rising soil temperatures, or by amending with additional nutrients. During times of inconsistent weather (rain, wind, and wide temperatures swings), when many attempt to establish vegetable gardens, this leaching aspect, and cooler temperature issue, may be pronounced.

***To Fertilize or Not To Fertilize*:** This leads us into the second factor – whether you choose to use an organic fertilizer, or synthetic fertilizer, or none at all. After consulting several Texas vegetable garden books, authoritative sources on-line, and attending vegetable garden classes, our research, based upon a consistent theme from the experts, indicates that vegetable gardens are most productive when fertilizers are used regardless of whether they are planted in the ground, in a raised bed, or in a container. Most sources recommend that fertilizers are most effective when applied during pre-planting soil preparation, when plants are seeded and/or transplanted, and at periodic intervals throughout the plants' or garden's lifecycle. Vegetables require a constant supply of nutrients, more so than most routine garden plants (i.e. flowers, shrubs, and trees). It takes a large amount of a routine plant's available resources just to produce leaves, stems, bark, and flowers. When you require fruit on top of that, the nutrient demand will be even greater. Many fruits and vegetables need the extra nutrients to sustain themselves, and to be productive over the long haul. One garden source suggests that because vegetables are such heavy feeders, "A good rule of thumb is to add small amounts of fertilizer often, as opposed to large amounts infrequently."

If you are still on the fence regarding fertilization, consider that garden soils have a finite number of nutrients contained within them (especially so in containers or raised vegetable gardens due to the nutrient leaching aspect). Much of the nutrients in soils may be consumed by the plants throughout the growing season and/or leached out through watering. So, at some point additional nutrients will have to be added in order to maintain the fertility and productivity of the garden, or time will be needed to allow for added compost to mineralize into nitrogen and other nutrients that can be taken up by the plants. Vegetables will grow in a new un-fertilized raised bed but chances are the results may be limited during the first year. However, growth productivity will increase over time as imported soil biological activity builds, thus the need for fertilization will diminish or be eliminated accordingly. In contrast, an in-ground vegetable garden is less susceptible to the leaching aspect, yet the vegetables are just as demanding. If your vegetable garden appears to be struggling, especially if relatively newly installed during a rainy or cooler period, you may want to consider fertilization as an option.

Synthetic Versus Organic Fertilizers: According to the experts, synthetic fertilizers are generally higher in nutrients than their organic counterparts. Nutrients in synthetic fertilizers are water-soluble and/or time-release and are generally available sooner to plants, whereas organic fertilizers are slow-release and dependent upon soil microorganism processing of the fertilizer components to make them available to plants. Synthetic fertilizers are produced from chemical compounds such as polymer-coated ammonium nitrate, whereas organic fertilizers are typically composed of natural-based compounds such as plant-based substances, animal manures, mineral powders or other naturally occurring items. A common myth is that organic-based fertilizers are safer and less harmful to the environment than synthetic fertilizers. This is not a universally accepted view. The long-term effects of fertilizers, both synthetic and organic, is still being studied by the scientific community and fertilizer manufacturers.

Reference Materials: Please further explore the reference materials used when preparing this document.
Books: The Texas Tomato Lover's Handbook by William D. Adams, Texas Fruit & Vegetable Gardening by Greg Grant, The Vegetable Book: A Texan's Guide to Gardening by S. Cotner, The Vegetable Gardener's Bible by Edward C. Smith.

Online: http://aggie-horticulture.tamu.edu/vegetable/, http://www.plantanswers.com/, http://aggie-horticulture.tamu.edu/vegetable/files/2010/10/E-502_home_vegetable_guide.pdf, http://aggie-horticulture.tamu.edu/publications/veg_variety/

