Establishing a Plant Production Site

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Why Do You Examine Your Growing Area?

Whether you are growing plants for small-scale commercial purposes or beautification of your yard, investigating the essential resources present before you plant provides substantial returns over the long term. A properly watered plant, growing in fertile soil in the appropriate environment, will grow healthier and be more productive.

Rather than planting in an available area and hoping problems do not arise, you should thoroughly evaluate your site beforehand. Success in growing will come when the production area is appropriate for the plants to be grown.

Know your Water, Soil, Plants and Environment

When setting up your production area it is important to collect information about WATER, SOIL, PLANTS and ENVIRONMENT. Ensure there is an adequate supply of good quality water, healthy fertile soil or the ability to improve the soil and determine if the plants you want to grow are appropriate for your end use and location.

Water

Growing plants in the desert requires a secure water supply of good quality for irrigation. Water is the most essential resource for plant production and quality water contributes to quality plants.

Different types of irrigation systems can be used – drip, flood and/or overhead – depending on the crops and your situation.

Drip, or micro-irrigation, provides efficiency and low water use. One major drawback with of drip irrigation is the amount of monitoring needed to prevent plugging or...
clogging. Distribution line and emitters must be flushed out periodically to remove algae and mineral buildup that clogs the system. The frequency for flushing lines is determined by the quality of water used and the type of irrigation system used (storage tanks vs. well water etc.). Monitor the output in the water system and emitters to determine how often flushes are required.

Flood irrigation is most often used in fields that have been leveled and are gently sloped to equally distribute a controlled flood from single or multiple sources of water. The frequency between flood irrigation is often too long for many crops and an alternate watering method is needed between water rotations, particularly at the time of planting and seedling emergence.

Overhead watering systems work best on shorter statured crops and can be used to keep some crops, such as greens, cooler and at higher production levels later in the hot season.

A backup water system is essential and can be in the form of a well, domestic water system, carboy, water tank or a water truck. A water storage system may be important with drip irrigation systems supplied from a well. Storage systems can serve as a backup supply to reduce pumping costs and help control pressure in delivery pipes. Also backup systems must be readily available. The loss of water for only a day in desert heat could result in substantial crop losses.

Soil
You must know the constraints of your soil. These are determined by measuring its texture, pH, nutrient availability, salt content and moisture-holding capacity. The grower collects a series of soil samples and sends them to an accredited lab for analysis. Results of the soil test are accompanied with directions on how to improve your soil. Further tips can often be gained by consulting local agricultural experts with Cooperative Extension or the Natural Resources Conservation Service (NRCS).

Most soils can be amended to address the problems or deficiencies that affect crop production. Various specific crops perform best when grown at certain optimum nutrient levels, organic matter contents and soil textures. Most information about crop-specific plant nutrition requirements is readily available on the Internet.

Many desert soils have low amounts of organic matter (less than 2%). Their productivity often increases dramatically with extensive additions of organic composts. Soils with higher organic matter generally exhibit more biological life, a more neutral pH and hold more water and nutrients. Compost also adds many essential nutrients. If possible, use compost that labels its nutrient content so you can calculate how much to add when amending the soil. In addition to the nutrient profile, you can tell whether the compost is high in toxic salts such as sodium (Na) and should be avoided or reclaimed. When buying a compost, look for a carbon to nitrogen (C:N) ratio that is lower than 10. Lower ratios indicate a higher quality compost.

Soil quality can also be enhanced by adding synthetic chemical or organic fertilizers for specific nutrients.

When growing plants in containers or pots, the potting mix can be purchased or custom made. Try to keep the water holding capacity high, but the soil weight as light as possible. Potting mixes are often made with a high water-holding substance, such as vermiculite or perlite, peat moss and
compost. Sometimes local soils can be blended in to the mix if they are not too heavy (i.e. higher clay or silt content).

**Plants**

Plants should be well-suited to the environment in which they’re grown, show good performance in the area and are of interest to you. There must be a strong end market within reach if you plan to become commercially viable.

Potential crops can be selected based upon local gardeners’ experiences with crops and varieties performance and market demand.

When growing landscaping plants, make sure the plants perform well in the environment and market where they will be sold. Landscaping trees and shrubs can be grown directly in soil, in pots above ground, or in a pot-in-pot production method. The pot-in-pot method places the growing container inside a second pot buried in the ground. This method requires less large equipment than in-ground production keeps plant roots cooler and reduces blow-over during winds.

**Environment**

The environment where the plants are being grown greatly impacts what plants will perform well. The USDA growing zones provide good general information on what plants are suited for a region. Within these zones there are numerous microclimates that affect plant growth. Climate can vary greatly depending on elevation, location on a valley side slope or valley bottom, or whether the site faces north, south, east or west.

Growers can use structures to manipulate their microclimates. A variety of growing methods can be used to protect plants from extreme temperatures. Shade cloths, available in a variety of densities, can be used to cool the growing area, even-out temperature extremes, and reduce wind and insect damage. Plastic on hoop houses or cold frames can greatly extend the growing season, during the cold seasons with increases in air temperature of up to 30 F.

**Summary**

When establishing a plant production area, the water, soil, plants and environment should be examined. The quality and quantity of plant products can be greatly improved by determining what can be done to optimize the plant production site and choosing suitable plants.

**References**
