Warm Climate Production Guidelines for Agave

Dr. Rick Schoellhorn and Alexis A. Richardson

Keywords: Agave americana, succulent, western landscaping, specimen containers, low maintenance, perennial, commercial crops

Commercial Production of Agave

*Agave americana* ‘Variegata’ is a larger (8-10’) form of this popular species. Photo by Dr. Rick Schoellhorn.

The Century Plant, or Agave, is an incredibly diverse group of rosette forming perennials. *Agave* are available to suit almost every climate zone in the U.S. with cold hardy forms that can withstand single digit temperatures. While most people look at these plants as a southwestern phenomenon, our changing ideas of what an annual is are opening markets for these plants as summer color throughout the U.S. Northern growers may need to look at buying in pre-finished material, as the crop is in general a very slow one from seed to sale can be 1-6 years. Plants are durable, but heavy which can be a problem in shipping. Another misconception is that all *Agave* are sharply spined, and a problem to work with; while it may be true that most *Agave* are spined, one of the most dramatic and easily grown species *A. attenuata* is soft leaved and extremely architectural. *A. americana* is a large blue gray foliaged form with sharp spines but a wide range of acceptable climates across the southern half of the United States. The variegated form of this plant is less cold hardy, but broadly banded with creamy yellow stripes. There are *Agave* native throughout the U.S and for specimen containers, or creating a western look in a landscape you can’t beat these prehistoric, bold textured. Except by using paddle Cacti, which is also a great idea, but will have to be another article…

*Agave* and other succulent plants are increasingly popular among plant collectors, home gardeners, and professional landscapers for a number of reasons. With water restrictions in place in many areas across the country there is an increasing demand for plants that are appropriate for xeriscaping, or landscaping to promote water conservation. Many *Agave* are particularly well adapted to withstand climatic extremes, from drought to high heat, strong winds, and frost. They are generally free from insect pests and diseases and are less prone to nutrient deficiencies. They are also amazingly tolerant of poor and shallow soils. There is a huge variety of forms and landscape uses for *Agave*, including ground covers, bedding plants, and imposing garden centerpieces. *Agave* make excellent container plants creating a high value product that consumers love because they stand up to neglect and don’t require frequent watering. *Agave* provide visual interest in the form of bold textures and colorful foliage.

Many of these characteristics make *Agave* attractive to professional growers. Although they may take longer to produce, these are plants that actually thrive on reduced water and fertilizer inputs. They rarely require insecticides, fungicides, or plant growth regulators. They are easily propagated by stem or leaf cuttings, while others readily produce offsets that can be removed and potted separately. Most succulents can also be propagated by seed, but it may take a year or longer for them to reach a saleable size.
In order to grow Agave, you will probably need to modify your normal production protocol. A well-aerated and freely-draining medium is critical. Commercial cactus and succulent mixes usually consist of equal parts coarse sand, perlite, and peat or fine bark. If you want to make your own, try mixing one part soil less or soil-based media with one part coarse sand and one part washed grit, small gravel, claimed clay, pumice, or expanded slate. Mixing a time-released fertilizer in the media will insure a constant supply of nutrients. Agave should be allowed to dry slightly between watering. Under potting is a good way to insure that the roots don’t become oversaturated. To produce rapid growth and the best form and color, Agave should be grown in the strongest light possible. Plants that are grown in full sun and warm temperatures will respond more favorably to high water and fertilizer inputs. Many Agave tend to go dormant during the shorter days and cooler temperatures of winter. This is the time when they are most prone to fungal pathogens that cause rot. To keep them actively growing during the winter months, you may want to consider extending day length with supplemental lighting and keep your greenhouse warm.

Maintaining a lower than normal relative humidity and excellent air circulation in your greenhouse will reduce the likelihood of disease and insect pests.

**Commercial production guidelines for Agave**

**Fertilization** – 150 ppm N, but for larger size production, a granular or slow release can be applied at medium rates. When using slow release make sure all other production environmental conditions are optimal, otherwise stem breakage, poor quality growth, and diseases can become an issue.

**Watering** – Always on the dry side, the key factor in good production is making sure roots have a lot of air surrounding them, which means you really need to watch watering and possibly use a media designed for succulent production.

**Media** – Use media with a lot of drainage capacity. Many growers cut normal peat production media in half and supplement with scoria, gravel, or PermaTill®. However, you can use a standard production media; you will just need to be careful with watering frequency.

**Production Temperatures** – In almost all cases quality growth occurs at night temperatures above 55F and day time temperature must be at least 65-
Warm Climate Production Guidelines for Agave

70°F. However, the hot days of summer will not be a problem and production conditions into the 100°F range can still produce good quality plants. High temperatures and high humidity can create a lot of disease issues, so stay on the lookout.

Light level – The higher the better in most cases, a minimum of 5,000 ft-C. Most plants require high light to develop strong leaf coloration and will stretch badly under low light conditions. Low light levels can be offset somewhat with dry soil conditions, but only for a short period of time.

Flowering – In most cases these plants do not need to be in flower to be sold, that’s part of the inherent advantage of growing this type of crop. Within the different types of succulents we’ve discussed here there are long day and short day flowering types, so do some research before taking on the crop if flowering is a major issue.

Overall notes:
Care needs to be taken to avoid over-watering and over-fertilizing any of these plants especially during the short days, lower light levels, and cooler conditions of winter.

Propagation – Seed, Cuttings, Leaf cuttings, Division of mature plantings.

Crop timing – Highly dependent on the crop. Check with your supplier and find out crop schedules before you commit to growing the crop. Some types are very slow and may require more than one season to reach a salable size. In general expect about a 10-12 month crop cycle.

Growth regulators – In most cases you’ll be using drought, and high light levels as a plant growth regulator and chemical PGRs should not be necessary.

Commercial Sources for Agave:
ForemostCo - http://www.foremostco.com
Ball Floraplant - http://www.ballfloraplant.com
Liner Farm Inc. Box 701369, St. Cloud, FL 34770-1369, Phone: (800) 330-1484
Fax: (407) 892-3593
Plant Delight’s - http://www.plantdelights.com
Yucca Do Nursery - http://www.yuccado.com
Saul Nurseries Inc. 5007 New Peachtree Rd, Chamblee GA 30341-3124, Phone 770-458-0058
Green Leaf Perennials - http://www.green-leaf-ent.com
EuroAmerican Propagators – http://www.euroamprop.com

Alexis A. Richardson is a contributing author with the Environmental Horticulture Department at the University of Florida.