

GROWING ALSTROEMERIA

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Alstroemeria, also known as the Lily-of-the-Incas, Peruvian Lily, or Inca Lily, has been grown in the United States since the 1970's mainly as a cut flower crop. In the past five years, it has been grown in popularity as a garden flower and as a potted flowering plant. The plants produce beautiful, large inflorescences of many different colors including purple, lavender, red, pink, yellow, orange, white and bicolors. In addition to

their showy colors, the cut flowers have long postharvest vase lives up to 2-3 weeks.

The Lily-of-the-Incas is also very popular with growers since the plants are versatile and easy to cultivate with cool temperatures. The plants produce high yields of flowers and possess an ever-blooming habit after flower initiation has occurred. Flowers may be harvested anytime during the flowering season since flowering stems will continue to develop from the underground rhizomes.

Alstroemeria plants may respond differently depending on the cultivar and the region of the United States in which they are grown; these differences are due to the extreme variation in growth habits, the uniqueness of the plants, and the complexity of the hybrids. New *Alstroemeria* cultivars from the University of Connecticut are the result of 12 years of inter- and intraspecific breeding using *in vitro* breeding techniques. The only fragrant Lily-of-the-Incas, that is also hardy to USDA zone 4, has been recently developed and released by the University of Connecticut as 'Sweet Laurah'. This cultivar has yellow flowers, is a distinguished garden plant and an excellent field grown cut flower. Other cultivars that are hardy to zone 6 and warmer, and that can be used as garden plants or cut flowers, include 'Freedomh' which has pink flowers and 'Redcoath' which has red. 'Emily Rose' is a genetic dwarf that has rose colored flowers and makes an excellent low-growing border plant or potted plant for the deck or patio.

Growth and Culture

As a monocotyledonous plant, the growth of *Alstroemeria* can be confusing. The herbaceous plants produce two types of shoots: floral and vegetative. Shoots are initiated on white, subterranean rhizomes. If a shoot is vegetative, it will always be vegetative and no flowers will form. Also, because it is a monocot, pinching the stem will not encourage branching, it will only kill the stem. A fibrous root system develops from the rhizome and can become thickened storage roots as the plant develops giving the incorrect impression of a tuberous root. *Alstroemeria* plants are vegetatively (clonally) propagated by rhizome division or micropropagation. Asexual propagation allows plants to grow true-to-type and quickly.

Alstroemeria plant heights vary from 1 to 3 feet tall depending on the cultivar, the amount of light the plant receives, and plant culture. Flowering stems are shorter on plants that are grown in full
Southeastern Floriculture, September/October, 1999

sun. Plants will also remain shorter during the growing season if some flowering stems and seedpods are removed. Some *Alstroemeria* cultivars will grow in 6 inch pots or larger. The 8 inch pots and gallon containers make nice, showy displays.

Most *Alstroemeria* plants are hardy perennials in zones warmer than 6 and are treated as annuals in colder zones. If the plants are planted in "pansy time" after the ground is workable, they will start to flower 6-8 weeks later and continue to flower all summer and fall until frost. If the summer is hot or if the location is dry, flowering may cease in the hottest months, but should resume in September. In the warmer zones of the southern United States, *Alstroemeria* plants are perennial; they flower from February to June and again from September until frost in November-December. Along the west coast, plants will flower all summer. The control of *Alstroemeria* flowering is a process that requires a primary cold temperature requirement and a secondary long photoperiod requirement. The cool temperature requirement should be fulfilled prior to the long photoperiod. Once flowering begins, the plants will continue to produce flowering shoots indefinitely until the soil temperature rises above 65 -70F for extended periods.

Lily-of-the-Incas are usually bought as plugs or 2½ inch liners. They are then planted into any well-drained medium as long as it has ample amounts of organic matter and a pH of 6-7. Liners should be planted shallow for earlier flowering and bushier plants. Plants that are to be sold in pots during the spring, can be potted up in the fall and allowed to grow with minimal care other than watering and fertilization. After liners are established, temperatures can be lowered to as low as 38°F and roots will continue to grow and fill the pots. About 30-50 days before pots are to be marketed, the foliage can be cut back completely and pots can be moved to warmer temperatures.

Proper watering is the key to success with *Alstroemeria*. Newly established plants should not be overwatered or rhizomes will quickly rot. On the other hand, established plants need abundant water and should never be allowed to remain dry for very long. Pots which remain dry for a couple days in extreme heat will exhibit yellowing of the existing foliage and flower buds will abort. Plants will revive and induce new shoots if they are watered again, but the drought period may delay bloom for several weeks.

Alstroemeria plants grow best in full sun especially if the soil surface is shaded from direct sun with a mulch and adequate water is provided. As a general rule, the more shade a plant receives, the fewer flowers it produces. This rule is not always true since situations in which the plant receives morning sun and afternoon shade also work well. In the greenhouse, long days, supplied by low intensity incandescent lighting or HID lighting will hasten flower initiation. A minimum of 13 hours of light per day is recommended for most cultivars.

Alstroemeria plants are heavy feeders so high nutrient levels are required once the plants are established. Regular fertilization with 400 ppm N each week is very important for good growth. Research has demonstrated that the number of flowers and the number of florets per flower will increase linearly as nitrogen is increased to 400 ppm.

Optimum growing temperatures for *Alstroemeria* in the greenhouse are air temperatures of approximately 50-60°F nights and 65-70°F days. Prolonged temperatures over 75°F may decrease or stop flowering. The air temperatures are not as crucial as the rhizome temperatures; soil temperatures should be kept between 55-60°F to induce flowering. Late afternoon waterings and mulch coverings will help to cool the rhizomes during hot periods. Air temperature greatly affects the length of flowering stems. Plants that are grown in cooler temperatures will have short and thick stems while plants grown in high temperatures produce tall and weak stems.

There is no commercial growth regulator registered for the control of *Alstroemeria* height. However, plants can remain short by choosing compact cultivars and by increasing light intensity with adequate spacing. When plants are first potted up, they can be grown pot to pot until the foliage starts to touch. In order to produce compact plants, the pots will need a final spacing of 15 inch centers for 7 inch pots and 18 inch centers for 8 inch pots. *Alstroemeria* also demonstrates a physiological effect referred to as the 'short

stem effect.' The more the plants are pruned, the shorter they will remain. It is beneficial to 'shape up' the plants as they grow by removing unsightly and irregular stems. Stems should be pulled out or cut back all the way to their base because the entire stem will eventually die once it is cut.

Lily-of-the-Incas plants are relatively disease and pest free. Snails or slugs can be a problem in field culture, as well as aphids, caterpillars and whitefly. The biggest pest problem is thrips since they get inside the flowers, are hard to control, and may transmit deadly viruses. Botrytis and root rots can be problems during periods of low light intensity. Botrytis is the most prevalent disease and can be avoided with good air circulation, removal of infected plant parts and preventative fungicides. Fungicide drenches of newly planted pots is recommended.

Availability

Wholesale plants of American-bred *Alstroemeria* are available as liners from Mojonier Enterprises in Encinitas, California, Coast Alpine Nursery in Lummi Island, Washington, Sunny Border Nursery in Kensington, CT and from *ConnectiCulture* at the University of Connecticut in Storrs, CT.

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