

ALSTROEMERIA

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Alstroemeria is a commercially important bulbous plant primarily grown for its beautiful cut flowers. These herbaceous perennials are also popular as potted plants and garden flowers.



These are commonly known as Peruvian lily. It is native to Peru-South America, belongs to the family Liliaceae.

The name Alstroemeria is derived from Swedish law-Scientists Carl Alstromer (1736 -1794), learner to Linnaeus. Most of the botanical varieties originated in Chile. There are varieties found in the mountains of Andes, some in the deserts along the pacific coastline and even deep in the tropical forests of Brazil. The 'Inca-lily' prosper at high altitude and with at least twelve hours of sunlight each day.

Alstroemerias are rhizomatous perennials, consisting of sympodial fleshy and multi-stemmed rhizomes. The leaves are entire, grey green to dark green in colour, hairless and thick. Depending on the environmental conditions, the shoots are either reproductive or vegetative. The inflorescence is a whorled cymose. Each cyme is sympodially branched up to four florets per cyme.

Alstromeria is a slightly zygomorphic (bilaterally symmetrical) flower with 3 sepals and 3 striped petals. It has six stamens and an undivided style. The ovary of the alstroemeria is inferior with 3 carpels. The alstromeria flowers are usually fleshy and are pollinated by bees. The flowers resemble miniature lilies and are generally spotted and marked striped with shaded colours and contrast patches.

The following species are related to Alstroemeria Species:

<i>Alstromeria aurea</i>	-	Lily of the Incas
<i>Alstromeria aurantiaca</i>	-	Peruvian lily
<i>Alstromeria violacea</i>	-	Flowers lavender Coloured
<i>Alstromeria pelegrina</i>	-	Parrot lily/parrot flower

<i>Alstromeria caryophyllacea</i>	-	Brazilian lily
<i>Alstromeria haemantha</i>	-	purple spot parrot lily
<i>Alstromeria ligtu</i>	-	Lily of the Nile
<i>Alstromeria psittacina</i>	-	White Alstromeria
<i>Alstromeria hookeria</i>	-	Flowers orange suffused pink

Aurantiaca, Butterfly, Orchid, Carmen are the famous varieties of Alstroemeria.

Alstroemeria requires deep well drained soil rich in humus with soil pH of 6.5 are good for cultivation of this crop. These plants thrive and flower well in cool subtropical climate. The optimum temperature range varies between 13- 20°C During winter months, temperatures should be 10°C at night and 16°C in day time. Light is critical for these plants. A photoperiod of 13 to 16 hours and the light intensity of 5000 ft candles are best for flowering. Additional lightning can be cyclic or continuous or a night break can be used. Partial shady location is preferable for better vegetative growth of the plants. Based on the colour, it is classified as follows:

White	Amanta, Alaska, Friendship, Snow queen
Yellow	Barceolana, Orchid Bolivia
Bronze	butterscotch
Red	Carmen, Fanfare
Pink	Annabel, Diana, Cinderella

Alstroemeria is commonly propagated by the division of rhizomes. For quick and productive crop, active growing healthy and disease free divisions are necessary. It is also done through seeds, but this is generally avoided due to variability. Generally plants raised from seeds produced more lateral shoots when compared to division. In-vitro germination of fresh seeds takes nearly two weeks, if sown at 15 to 18°C for better germination, seeds which are more than one year old from harvest are generally sown in moist warm conditions at 18-25°C and kept for a month, thereafter moist cool conditions is required for another month.

Alstromeria grow well in the hills. Planting of rhizome is done in late summer. Soil is prepared to a fine tilth.

Raised beds of 90 cm breadth and 30 cm height are formed. The rhizomes are planted at a depth of 7.5 to 10 cm. Depending upon varieties, they are spaced at a distance of 45 x 45 cm or 40 x 50 cm. Two rows of rhizomes are planted per bed.

Application of fertilizers mainly depending on soil analysis. The soil pH should be maintained to the optimum level. These plants are sensitive to high salt level. Before planting, a basal dose of cattle manure (20 tons/ac), neem cake (3 tons/ac) and NPK@40:40:40 kg/ac are applied. Top dressing with 10kg potassium nitrate and 20 kg calcium nitrate is given once in a month. Neem cake 250 g/plant is recommended for every month.

Planting media of Alstroemeria should be kept moist. It performs best when plants receive frequent, fairly heavy watering. Because, most of the roots are located in the top layer of the soil. When the growth is very intensive in the autumn and winter or when the leaves turn yellow it is better to give less water for a few weeks. Over watering adversely affects flower production and causes root rot. Adequate ventilation and good air movement is desirable. To avoid a vigorous reproductive growth when planted in the autumn it is necessary to thin the plants by pulling blind stems regularly.

When planting is done in spring or summer it is necessary to build up the crop by pinching the first ten to fifteen stems on a plant. By this the grower can ensure a crop of alstroemeria having enough length later. During winter these pinched stems can be pulled out.

There are several varieties that grow tall. Hence, support lines are set up on the beds immediately after planting. At the time of planting, 3 or 4 layers of wide netting is fixed and these layers are raised as the plants grow. The lower most layer should be about 30cm above the ground level. The netting usually has openings of 20 x 17 cm size.

Aphids are usually found on young leaves and flowers. It pierces and sucks the foliage causing the growth to become retarded. The plants become malformed and the crop fades in colour and wilts. It is effectively controlled by spraying Dimethoate @ 2ml/lit of water.

Thrips causes silver coloured strains appear on the foliage and the shoot tops are crumpled. Flowers are

malformed and their colour become streaked. At the same time the flowers fail to mature and open and the petal tops become brown. Thrips are controlled by spraying acephate 1gm/lit of water.

Mites are usually found on the underside of the leaf. It positions itself in the plant cells and sucks the sap. As a result white dots are seen on the underside of the foliage. During severe infestation the plant foliage turns yellow and wilts finally causes the death of the plant. Spraying Fenzaquin 2ml/lit of water controls mites.

Caterpillars feeds on leaves and flower buds causing damage to the plant. Caterpillars are controlled by spraying acephate 1gm/lit of water or chloropyriphos @ 1ml/lit of water.

Botrytis causes the plant to rot showing fluffs of dusty grey mould and brown colour strains appear on the flowers which are also blemished with small lumps. Heating and ventilation is the best remedy for rot, With regular crop thinning, the crop does not only receive more light but also better air circulation. Spraying of benomyl 0.1% is done.

Pythium attacks an alstroemeria crop, which is planted in heavy compact soil and remains constantly wet. Pythium



gives a glazed appearance to a part of the root which eventually rots away. The inner part of the root remains intact, but the outer glazed area is lost. Spraying of Fosetyl Aluminium @ 1.5g/lit of water control.

In case of Rhizoctonia rot, the stems show rotting just above the soil level. The crop gives a retarded appearance. Stems show brown strains upon the area that is submerged underground. Sterilised media and fungicide

drenches are used at the time of planting to reduce these diseases. Spraying Cholothalanil 1.5g/lit of water is found to be effective.

High light intensities, long photoperiod and cool temperature are favourable for good flower production. In such conditions plants flower within 100 to 120 days and continue flowering year round. Best flowering under natural conditions is in spring and early summer season.

Flowers are harvested when the flowers are fully coloured. Harvesting is done by pulling the stems out of the soil. The stems are harvested twice a week during the winter and 2 to 4 times a week during the summer. For

long distance markets, flowers are harvested when the buds are about to open and start to colour. For local market, harvest is delayed until the first 3 flowers have opened.

The yield ranges from 180-400 stems/m²/year depending on variety and production method.

The flower stems are graded into three classes. Class one flowers are 80 cm long with rigid stems and show three or more flowers per stalk. Second class or class B flowers should have a class or Class B flowers should have a minimal length of 60-70 cm with three or more flowers stems per stalk.

Alstroemeria can be stored at 4°C for 2 to 3 days. Alstroemeria are normally bunched. One bunch consisting of about 10 flowers is sleeved and packed in horizontal boxes. The flower pedicels are affected by gravity and bend upwards when temperature control during storage is poor. Alstroemeria is sensitive to ethylene and hence these are to be pulsed with STS at 4mm for 12 hours before storage or transportation. Increase in vase life and prevention of yellowing of foliage can be achieved if the cut flowers are kept in 100ppm GA3 solution.

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