

# Cultivation of Pot and Garden Alstroemeria, Inca selections.

About ten years ago Könst Alstroemeria started to develop garden varieties. In the beginning it were taller varieties that reached up to 50-60 cm in the garden, but the last couple of years the new varieties have become shorter with more or bigger flowers. Very suitable as balcony or terrace plants on pots. If treated well Inca alstroemeria varieties can flower from May to October. Now the whole range of the Inca selection contains Micro, Compact and Medium/large types;

## Selections

Micro selections; 20-30 cm. This selection contains the shortest varieties, that have no problems with too much length in case it gets warmer in a greenhouse. Very suitable to grow totally in a greenhouse but also possible in plastic tunnel or (partly) outside. Varieties: Inca Vito, Inca Lolly, Inca Sweety, Inca Toto, Inca Husky, Inca Goal, Inca Noble

Compact selection; 30-35 cm. This selection can be grown in greenhouses in winter and spring. In case it gets warmer than 16 °C regularly with nights no cooler than 10°C they can grow fast and stretch too much (especially Inca Mambo, and Inca Lake. Inca Avanti and Inca Smile are more easy to control). Than it is better to finish the last part of the growth outside or in a plastic tunnel that can be opened from the sides. Culture totally outside also possible as long as it doesn't freeze. Varieties: Inca Mambo, Inca Avanti, Inca Lake, Inca Milva, Inca Bandit, Inca Smile



Medium/tall selections; 35-45 cm; varieties suitable to grow outside or in plastic tunnels that can be ventilated much (open sides). Generally these varieties stretch too much in warmer greenhouses in spring. Which can result in long, weak stems. Excellent varieties as garden plants (also sold in 9-13 cm pots with label, not flowering) because of their long flowering period (May-October). Culture totally outside also possible as long as it doesn't freeze. Varieties: Medium; Inca Yuko. Varieties:Tall; Inca Exotica, Inca Ice.

## Youngplants

Könst Alstroemeria delivers plants on 3 cm plugs, from tissue culture. Normally 108 plants per box. Planting period; from October until May for plants that start flowering from March until August. The total growing period takes 18 to 28 weeks depending on the temperature and amount of light.(see cultivation period).

## Pot size

Most common pot size for sale as flowering plant; 3,5 ltr/ 19 cm or 1 Gallon/8 inch. A few growers sell plants on 9 to 13 cm pots, not flowering, with a label to show the flower (10-12 weeks).

## Planting

Plant 1 plug per pot . Use a standard herbaceous, well drained potting medium with a pH between 5 and 6, preferable sterilized. In our test greenhouse in Holland we start with a soil that contains several types of peat, a little bit of clay, a stock of fertilizer 17-10-14-4 (N-P-K-Mg) with an Ec of 1,0.

Plant density; 9-14 pots/m<sup>2</sup> (19 cm pot). In the beginning the pots are placed close together and gradually given more space.

In order to develop an attractive, compact plant it is necessary that the plant gets sufficient growing space. Make sure that the plants are not too close to each other and see to it that the leaves of the various plants do not touch one another.

## Cultivation period

Best planting period for a 19 cm pot will be between week 38 and 50. The sales of flowering plants normally starts in April. The cultivation period varies if the plants are cultivated under different temperatures than advised. Under warmer temperatures, the crop time will be shorter and vice versa.

1. Starting in autumn, with cutting back in winter ;start week 40 / week 5 cutting / ready: early spring week 14-15. [For advice on cutting back, see below in this information.]
2. Starting in autumn ; start week 46 / ready: early spring week 14-16.
3. Starting in winter ; start week 2 / ready: spring week 18-22.
4. Starting in late spring ; start week 20 / ready: end of summer or beginning of autumn week 32-35.

## Irrigation

After planting make the soil totally wet. Then keep the soil very well humid. If the soil gets too dry for several days the plants start making thick roots to survive a dry period (storage of assimilates). This will diminish the quantity of shoots and flowers. The best irrigation system is drip irrigation, although an ebb and flood system works as well. Overhead irrigation is more difficult because of the umbrella effect when the vegetation gets bigger which causes the water to fall beside the plants instead of in the pot. Also it causes more leaf problems and botrytis in the flowers.

## Climate/temperatures

Required temperature;

- After planting; 10-12 °C. For a quick development of roots and rhizome. For the micro types up to 14 °C
- From 2-3 weeks after planting; 9-12 °C day/8-10°C night
- Spring; maximum up to 16 °C during the day with enough daylight. Night 8-10 °C



Directly after planting the temperature should not be too low to stimulate the growth of the rhizome. If the rhizome doesn't develop enough in the beginning plants will later not make enough shoots and the pot will not be filled enough.

Below 6 °C the plants hardly develop and some leaf problems can occur. Frost will destroy the leaves. As long as the rhizome in the soil is not frozen the plant can recover.

Culture outside is possible but below 6-8 °C it is too early to start planting. When the flowers start opening the climate should not be too humid because of botrytis in the flowers. Some protection against rain and hail is better.

When plants are moved from a greenhouse to the outside protect the plants by shade cloth. Because the leaves and flowers are not used to direct sunshine they are sensitive to leaf burning.

Screen; in greenhouse with a screen it can be closed at 600 watt/m<sup>2</sup>. especially at the end of the growing period to prevent leaf/flower burning.

## Growing climates over the world

High light levels combined with no or hardly any frost. During the whole growing period plants are kept outside [temperature the first 3 till 4 weeks is important - see growing information]. For example: California (USA), the Spanish south-east coastline, Sicily (Italy) and New South Wales (Australia).

High light levels combined with lower temperatures and some frost. The growing period starts inside, but the plants are put outside rather early. For example: the French- and Italian Riviera and the southern part of Italy.

Low light levels combined with a long period of possible frost and higher temperatures already during late winter / early spring. Plants are only being grown in the greenhouse. For example: The Netherlands. 4. Low light levels combined with a long and cold winter. Plants are only being grown in the greenhouse. For example: Scandinavia.

## Cutting back

If the plants grow too tall it is possible to cut off all the stems at about 3 cm. New shoots will appear and will start flowering on shorter stems in about 8-10 weeks after cutting in spring. Plants can grow

too tall because of a lack of light and/or too much temperature. Plants that develop a lot of vegetation (in winter) with greenhouse temperatures getting over 16 °C in early spring, can stretch too much.

This is mainly done with a few varieties like Inca Joli, Inca Glow, Inca Yuko, Inca Exotica and Inca Ice. Sometimes done with Inca Lake and Inca Mambo. Normally with Inca Avanti and Inca Smile it is not necessary. For the micro types it is not necessary at all. They hardly stretch in darker or warmer circumstances.

Pinching/pulling out leafy stems; some varieties like Inca Vito and Inca Noble can grow full with leaves in winter and early spring, while the stems with buds remain under these leaves. In such case it is better to pinch or even pull out some leafy stems in the middle of the plant.

Also if plants get too old for selling it is possible to cut them back and let them start growing again.

## Fertilization

The pot soil to start with should have an EC of about 1.0. Gradually it is raised to an EC of 2 to get sturdy plants with nice dark green foliage.

In order to prevent the plants from stretching too much in January, February we advise to provide little nitrogen (N), and plenty of potassium (K). So start with fertilizers like 7-11-27-6 (N-P-K-Mg).

From March it is changed to 12-2-14-5MgO-8 CaO or something alike.

The fertilizers are given regularly during the growth with drip irrigation with an EC of 2,0-2,5. When grown outside too much rain will drain out fertilizers easily.

Target figures in a 1:1,5 extract with water; in mmol/l

pH	EC	NH4	K	Na	Ca	Mg	NO3	Cl	S	HCO3	P
5,6	1,4	0,5	1,6	2,5	2,0	1,2	2,0	2,5	1,5	-	0,20

Micro elements in  $\mu\text{mol/l}$

Fe	Mn	Zn	B	Cu	Mo	Si
10	2,0	2,0	10	0,7	-	-

## Growth regulators

The use of growth regulators in April and May can prevent too much stretching of the plants. Experience is limited. Most growers don't use them.

Micro types don't need growth regulators to control length.

## Diseases and plagues

Astroemeria can be sensitive for snails, caterpillars, aphids, thrips and spidermite. Normally the leaves are not sensitive for fungi. When the plants are flowering too much rain and humidity can cause botrytis in the flowers.