

***ALSTROMERIA AURANTIACA*– A VALUABLE HORTICULTURAL SPECIES**

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Abstract:

The elegance of the flowers (laymen consider them orchids), long water preservation period are qualities recommending Alstromeria as a member of the long lasting vase flowers. Most recent polls among flower buyers situate Alstromeria on 7th place after carnations, roses, gerberas, tulips, chrysanthemums and Anthurium. Alstromeria has a bushy appearance due to its herbaceous shoots. The leaves are ovate-elongated (8-14/2-4 cm), alternately disposed. Below the inflorescence the leaves form a rosette. The flowers are grouped in terminal umbrellas. Rhizomes formed in the ground are white, fleshy and very fragile.

Key words: *Alstromeria aurantiaca*, flowers, cultivars, rhizomes

INTRODUCTION

Alstromeria aurantiaca is multiplied by the fragmentation of the rhizomes at the end of the hibernation period. Rhizome pieces present tuberized roots and small shoots (up to 5-8 cm).

For starting a culture, following activities are required:

- Basic fertilization using 50-100 t/ha of manure. On heavy soils 100-150 t/ha of peat are administrated. Chemical fertilization is applied only after laboratory soil analysis consisting of 20-30 mg N, 10-14 mg P₂O₅, 30-60 mg K₃O, 8-12 mg MgO to 100 g soil (determinations performed on aqueous soil extract of 1:5) and pH in the range of 6.3-7.2.
- Tillage using Wikon moto-spud at 30-35 cm depth.
- Tillage with Falk rotary spud at 25/28 cm depth.
- Soil steam disinfection (90°C at 25 cm depth), for an hour or chemically using one of the following products: Ditrापex 70 g/m², Dazomet 50 g/m² or Temik 5 g/m².
- Milling after a period of remanence (at least three weeks after soil disinfection).
- Planting - two rows on a layer of 0.9 m width, at 60 cm distance between rows and 50 cm between plants in a row, in 15 cm deep holes. Planting is performed in August-September. If planting is performed later, the flowering is delayed next year.

Plant requirements concerning environmental factors. The light is a factor of paramount importance for plant growth and development. Low light intensity during the winter is the main reason of blind sprouting. During the summer, for overheating prevention, the greenhouse is shaded. However, the species is a light loving one. During the first weeks after plantation, the temperature is maintained at 14-16 °C during the night and 12-14 °C during the day. During the winter when light intensity is reduced, the recommended temperature is 7-8°C during the night and 12-14°C during the day. For the rest of the months, the temperature must not exceed 14°C during the night and 20°C during the day. High temperature forces blooming but meantime, decreases flower production and quality (discolored petals, thin stems, and short preservation time). *Alstromeria* has high water demands: It is worth to remind that drought as well as over watering have an unfavorable effect on plants. Frequent variations in water regime induce a state of shock in plants' life, leading to debilitation. Water regime must be monitored by laboratory analyses, in order to keep the active water regime in the range of 49-59%. *Alstromeria*'s soil requirements consist in deep active layer, aerated and properly supplied with easily accessible nutrients.

Horticultural practices: during the entire biological cycle, the practices employed include soil works, the installation of trellis system, soil fertilization, phase fertilization when needed, watering, plant shadowing, pest control and prevention and flower harvesting.

In *Alstromeria* culture, the soil must be maintained permanently loose and clean, the weeding being a permanent activity.

Wire trellis system is composed of a frame installed every three meters sustaining the wires on which a net is applied with mesh dimension of 10-12 cm. The first net is installed at 15 cm distance from the soil level followed by the second net at 18 cm distance from the first net and the next nets separated by 20 cm (the total number of nets is 4-5). In order to ensure a good humidity regime, watering must maintained at 3-4 applications during the summer and only at 1-2, during the winter. It is recommended to water in the morning, especially in sunny days, in order to avoid wetting the leaves and flowers.

Supplementary fertilization is applied only it is necessary. In the case of new cultures, fertilization should not be applied before 35-40 days from planting in the field. Supplementary fertilization should not exceed the normal level of nutrients, especially in the case of nitrogen. It is advisable to avoid excess mineral fertilization if the fertilizer contains chlorine which has a negative influence upon the plants.

MATERIAL AND METHOD

The following cultivars were employed:

- Jubilé, characterized by bushy growth form, reaching 70-90 cm in height and with white flowers.
- Bianca, with red flowers and 100-120 cm in height.
- Zebra, with yellow flowers mottled with red.

The three *Alstromeria* cultivars were planted in the greenhouse during the same day, on areas of 100m² each. Same practices and environmental conditions were maintained over the entire cultivation period.

RESULTS AND DISCUSSIONS

Table 1 presents the average values of the flower yield and one can see that environmental conditions and the relatively uniform culture technologies led to quantitative differences as function of the soil type.

Table 1
Alstromeria aurantiaca total flower yield (average values between 2009-2011)

Cultivar	Flower yield		D±	Significance of the difference
	Individuals /m ²	%		
Zebra	59.7	100	-	-
Bianca	68.7	118.65	9.0	***
Jubilée	69.0	119.17	9.3	***

Flower yield grew from 59.7 individuals/m² (Zebra cultivar) to 69.0 individuals/m² (Jubilée cultivar). Extremely significant differences were observed at Bianca and Zebra cultivars.

From qualitative point of view (also economically important) the differences are conspicuous: the flower rated as *extra* registered growth values of 28.8 individuals/m² in Zebra cultivar, 31.2 in Bianca cultivar and 32.1 in Jubilée cultivar. The flowers rated as of *second quality* decreased from 10.3 individuals/m² in Zebra cultivar to 6.7 individuals/m² in Bianca cultivar and 5.0 individuals/m² in Jubilée cultivar (Table 2).

Table 2
Alstromeria aurantiaca flower quality (average values between 2009-2011)

Cultivar	Flower yield			
	Total number Individuals /m ²	Of which		
		Extra	I st Quality	II nd quality
Zebra	59.7	28.8	20.6	10.3
Bianca	68.7	31.2	31.1	6.4
Jubilée	69.0	32.1	31.9	5

Since created environmental conditions were uniform and cultivation technology was similar, production expenses varied between narrow ranges from 4, 621 lei/ha in Zebra cultivar, to 4,622 lei/ha in Bianca cultivar and 4, 622.75 lei/ha in Jubiléé cultivar.

CONCLUSIONS

- *Alstromeria*'s requirements towards temperature must be correlated with evolution of growth and development processes.
- The species requires temperatures varying between 8 and 15 °C (8-9 °C during the night, 10-11 °C in cloudy days and 12-15 °C in sunny days).
- It is a light demanding species but when irradiance is strong and persists long time (during the summer) the greenhouse windows must be occluded with white paint.
- Water regime must be correlated with temperature level since excess and deficiency are unfavorable for plants.
- The fertilization is important and has an important place but must be performed with caution, taking into account the nutrient reserve in soil which is determined by agro-chemical mapping repeated every month and also, the optimal level required by the plant.
- The soil plays a central role in the realization of quantitative and qualitative plant production also from economical point of view.

The gained experience in *Alstromeria*'s culture in greenhouse complex from Sîntandrei is a valuable practical guide for all those who are interested in cultivating it.

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