

RESULTS OBTAINED IN THE CULTIVATION OF DIFFERENT VARIETIES OF *ALSTROEMERIA*

Ioan Vlad, Mariana Vlad, Ioana Meșter, D. Meșter, Smit I.*

*University of Oradea, Faculty of Environmental Protection, 26 Gen. Magheru St., 410048 Oradea; Romania, e-mail: ioanvlad2006@yahoo.com

Abstract

The elegance of the flowers (ignorants consider them orchids) and their long vase life make Alstroemeria very appreciated.

According to recent surveys in Europe, Alstroemeria occupies position number 6 among flower buyers, after carnations, roses, gerbera, tulips, chrysanthemums and anthurium.

The economic importance of the Alstroemeria consists in the intensive cultivation and the high yield per unit of surface. It represents an important income source, coming from the selling of flowers on both the internal and the external market.

The study focuses on flower yield and their quality in the Bianca and Jubilee varieties.

Key words: *Alstroemeria*, root tubers, trellis, fertilisation.

INTRODUCTION

Alstroemeria grows as a shrub formed of herbaceous shoots, on which oval leaves alternate. (8-12 cm/2-4 cm) A small rosette forms under the inflorescence. The flowers are grouped in terminal umbels. In the soil, the plant has very fragile white rhizomes.

Alstroemeria propagates through the fragmentation of the rhizomes at the end of the rest period. The rhizome parts will be accompanied by attached root tubers and small aerial shoots. (up to 5-8 cm) The following steps have to be followed for cultivation:

Soil fertilization with 50-100 t/ha manure. For clayey soil, 100-120 t/ha peat is also added. Chemical fertilisers may be added only after a laboratory analysis, providing 20-30 mg N, 10-14 mg P₂O₅, 30-50 mg K₂O, 8-12 mg MgO per 100 g of soil (determinations made in aqueous extract 1:5), pH between 6.3 and 7.2.

Plowing with a Wikon rotary tiller - at a depth of 30-35 cm.

Plowing with a Falk rotary tiller - at a depth of 25-28 cm.

* Soil sterilisation - with steam at 90°C at a depth of 25 cm for one hour or chemically with one of the following: Ditrax 70 g/m², Dazomet 50 g/m² or Temik 8 g/m².

* Tillage, after at least three weeks from the chemical sterilisation.

* Planting - on two rows on a 0.9 m thick flower bed, at 60 cm between the rows and 50 cm between the plants on a row. The holes should be 15 cm deep. The planting is to be carried out in August-September, otherwise the flowering will be late in the following year. (I. Vlad, 2006)

Environmental requirements

Light has a highly important role in the growth and development of the plants. Low light during the winter leads to the apparition of blind plant shoots. During the summer the plants should be shaded to avoid overheating. (D. Zaharia, 2003)

In the first weeks the temperature is maintained at 14-16°C during the night and 16-21° during the day. In winter when light intensity is low, it is recommended to drop the temperature at 7-8°C during the night and 12-14°C during the day. Otherwise the temperature should not exceed 14°C during the night and 20°C during the day. High temperature forces the plant to flower, but it reduces the number and the quality of flowers. (discoloured petals, thin stalks with low vase life)

Water has a very important role. Both draught and water excess are unfavourable. Going from one state to another represents a shock to the plant. The water regime of the soil must be monitored in the laboratory and will be kept at a 48-50% level from the active humidity interval.

Alstroemeria prefers deep, well-aerated soil, containing nutrients in accessible form.

Care

The objectives are taking care of the soil, installing the support structure, fertilisation (when necessary), watering, shading, preventing and eliminating plant disease and pests, flower cutting.

The soil must be maintained permanently loose and weed-free.

The support structure consists of frames from 3 to 3 m. On the wires between the flower beds a thread net with a 10-12 cm mesh is laid. The first

net is fitted at a 15 cm height from the soil, followed by a second one at 18 cm from the first one. The remaining 2-3 nets are at 20 cm from each other. The plants will be watered 3-4 times a month during the autumn and only 1-2 times a month during the winter. It is recommended to water the plants in the morning, especially on sunny days, and to avoid watering the leaves and flowers. (M. Cantor, 2004)

Additional fertilisers will be added only when necessary, but only after 35-40 days from the planting. The excess of nitrogen has to be avoided, as well as mineral fertilisers containing chlorine, which has a negative effect on plants.

RESULTS AND DISCUSSION

At the Oradea greenhouses Jubilée, Bianca and Zebra varieties have been used.

Table 1 shows that in relatively uniform environment conditions and culture technology the flower production presents quantitative differences according to the variety.

Table 1

Results obtained in the cultivation of different varieties of Alstroemeria (medium values), Oradea, 2005-2006

No.	Variety	Flower production				Expenses lei/ha	Production value lei/ha	Profit lei/ha
		Total thousand units/ha	Of which:					
			Extra	1st quality	2nd quality			
1.	Zebra	579	288	206	85	4,621,00	5,790,000	1,169,00
2.	Bianca	587	312	211	64	4,622,00	5,870,000	1,248,00
3.	Jubilée	590	321	219	50	4,622.75	5,900,000	1,277.25

Therefore the production increased from 579,000 flowers/ha in the case of the Zebra variety to 590,000 flowers/ha in the case of the Jubilée variety.

In what concerns quantitative and economic aspects, the differences are more obvious. The extra quality flowers gave values of 288,000 flowers/ha for the Zebra variety to 587,000 for the Bianca variety and 590,000 for the Jubilée variety.

Similarly, first quality flowers gave values of 206,000 flowers/ha for the Zebra variety to 219,000 for the Jubilé variety. Second quality flowers gave values of 85,000 flowers/ha for the Zebra variety to 64,000 for the Bianca variety and 50,000 for the Jubilé variety.

Since the environment conditions were relatively uniform, production expenses do not vary much: 4,621,00 lei/ha for the Zebra variety, 4,622,00 for the Bianca variety and 4,622,75 for the Jubilé variety.

The profit ranges from 1,169,00 lei/ha for the Zebra variety to 1,277,00 for the Jubilé variety.

CONCLUSION

The temperature requirements of the *Alstroemeria* must be correlated with the evolution of growth and development processes.

The plant requires temperatures of 8-15°C. (8-9°C during the night, 10-11°C on cloudy days and 12-15°C on sunny days)

Light is very important, but during very sunny days in the summer the plants need shade.

The water factor has to be correlated with the temperature level, since both the lack and the excess of water are unfavourable.

Fertilisation plays an important role and has to be effectuated in relation to nutrients present in the soil, the level of which is to be determined monthly.

As a production means and main factor of using the entire ecosystem the soil has a decisive role in the quantitative and qualitative realisation of the production and economic requirements.

The experience accumulated in the cultivation of *Alstroemeria* in the Oradea Greenhouse Complex may constitute a guide to those interested.

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