



International Journal of Botany

ISSN: 1811-9700

science
alert

ANSI*net*
an open access publisher
<http://ansinet.com>

The Useability for Cut Flowering of Hyacinth Culture Types Planted in Different Environments

Nalan Türkoğlu and Arzu Cığ

Department of Horticulture, Faculty of Agriculture, YYU 65080 Van, Turkey

Abstract: The cut flowering quality criteria of four different types of hyacinth (*Hyacinthus orientalis* 'Blue Jacket, Carnegie, City of Haarlem and Jan Bos) planted in open air between the years 2003 and 2005 was investigated. It was found that of those planted in the ecological conditions of Van in greenhouse, Jan Bos was the earliest one to be harvested in 112.98 days where as City of Haarlem was the flower with the longest plants size with 212.86 mm and the thickest stalk with 12.45 mm, again planted in a greenhouse. Under the scope of these data, it was determined that the most efficient planting area is greenhouse, the earliest flowering type is Jan Bos and according to the flower criteria the most appropriate type is City of Harlem.

Key words: Hyacinth, type, cut flower

INTRODUCTION

The heights of the hyacinths are between 20 and 30 cm and they have bell type folded or unfolded smelling flowers of heights between 15 and 20 cm (Anonymous, 1999). It is announced that temperature is the most effective factor for the control of growing and developing during the flowering stage and depending on the planting season and types of seeds used, the optimum temperature is between (-2)-34°C. It is mentioned that fertilization is not necessary during the flowering stage of *hyacinthus orientalis* flowers.

Gunes *et al.* (2002) notifies that at the plants which have in sufficient phosphorus, there is a decrease in the leaf surface area, leaf growth and leaf quantity and the plant loses immunity against cold and disease whereas excess phosphorus causes loss of product and creation of premature fruit. The effect of DAP (diammonium phosphate) fertilizer on cut flower quality was not investigated before. It is declared that super phosphate or ammonium phosphate can be added into the water during the growth period of the plant as much as they need or it can be placed at the moment of planting under the seed in the ground.

The aim of this study is to plant *Hyacinth orientalis* flower types (Jan Bos, Carnegie, City of Haarlem and Blue Jacket) which are normally not used around Van region and determine the usability of those flowers as outside flowers and cut flowers.

MATERIALS AND METHODS

This study was conducted in the Horticulture Department of the Agriculture Faculty of the University of Yuzuncu Yıl in 2003-2004. In the greenhouse region

where the experiment took place the maximum temperature values altered between 18.2-33.5, the minimum temperature values altered between -5.2, -5.4°C and the average maximum temperature was 25.6°C, the average minimum temperature was -1.2°C. The average maximum humidity inside the greenhouse was between 76-80.5% and the average minimum humidity was between 26-45%. Nice smelling, early types of *Hyacinthus orientalis* types at different colors: Jan Bos (red) Carnegie (white), City of Haarlem (yellow) and Blue Jacket (blue) were preferred. To make sure that the bulbs are healthy, it was given special care for the flowers to complete their cooling periods in the depot and come as being disinfected. Depending on the analysis results of the earth samples taken from 20 cm deep in the experiment region, the type of the planting earth was determined as sandy slightly alkali reaction unsalted, medium stage, limed, low organic material, nitrogen and phosphorous included (Gulser, 1992).

The trying regions were determined randomly three times. At each part, 12 hyacinth bulbs were planted. The obtained averages were tested according to the Duncan multiple comparison method. The part dimensions are 70×40 cm in length. Each part included 4 lanes each of which was 10 cm away from each other.

Two hundred and forty per type was used among the Jan Bos, Carnegie, City of Haarlem and Blue Jacket bulbs. Planting was done in two different regions at the field and in the green house. The research was applied to the parts in away that 18:46:0 ratio DAP fertilizer will be given 0, 4, 12 kg per decameter (in three different doses). This application was repeated three times. In this research, the flowering times of the bulbs, harvesting times, stalk thickness, floret lengths and the number of florets were investigated depending on the different planting places and used fertilizer doses.

RESULTS AND DISCUSSION

Full harvesting time: The full flower harvesting time averages and groups depending on different places and fertilizer doses used at the production of the four flowers used are given in Table 1.

It is mentioned that among the other early types, City of Haarlem flowers flower little big later (Ferguson, 1992). The obtained results are in accord with the eu works. The fact that fertilization does not has an effect on flowering time is similar with Beazley (1974). It is thought that the open field conditions make a negative effect on the flowers and delay the flowering time.

Harvesting time: The results related to the planting of hyacinth bulbs for cut flowering in Van region and their usability for landscape architecture and harvesting time applications of different fields and fertilizer doses with the obtained groups are shown in Table 2. According to this, for the harvesting time, the lowest average was obtained in greenhouse with 118.82 days in average and the maximum average was obtained in field with 164.62 days in average and it was found that the difference between them was 1% significant.

The harvesting time averages, the lowest value was obtained at the Jan Bos type with 138.34 days the maximum value was obtained at the City of Haarlem type with 149.17 days. The difference between them was found to be is 1% significant with this result is accord that (Ferguson, 1992) had found.

However, the difference between the fertilizer averages was not found to be statistically significant. The lowest value was obtained at 0 kg fertilizer doze with 141.16 days and the highest value was obtained at 12 kg fertilizer doze with 142 days. As it can be understood from these results, it is thought that DAP fertilizer doesn't effect the harvesting time significantly. When thought for the cut flower production, there is a very important difference of approximately days between the harvesting times of Jan Bos and City of Haarlem types.

Stalk thickness: The difference between the type averages of the stalk thickness was found as statistically 1% significant and it was observed that Jan Bos type had the minimum value with 7.75 mm and City of Haarlem was the maximum with 12.45 mm (Table 3).

Floret length: It is announced that hyacinth flowers have plenty of 2.5 length florets in their cylindrical clusters.

Table 1: The effects of different field and fertilizer doze applications on full flowering times of different and the groups (day)

Plot	Varieties	Fertilizer dozes				Mean
		0 kg da ⁻¹	4 kg da ⁻¹	8 kg da ⁻¹	12 kg da ⁻¹	
Field	Jan Bos	160.16	162.24	162.74	163.09	162.06b
	Carnegie	162.34	159.02	160.10	158.88	160.09b
	Blue Jacket	160.04	159.51	158.51	161.15	159.80b
	City of Haarlem	168.01	168.70	167.29	169.13	168.29a
	Mean	162.64	162.37	162.16	163.06	162.56a
	Jan Bos	112.91	109.58	110.58	110.09	110.79f
Greenhouse	Carnegie	112.75	113.61	114.55	114.00	113.73e
	Blue Jacket	116.41	117.69	117.30	116.64	117.01d
	City of Haarlem	123.00	125.41	125.33	124.95	124.67c
	Mean	116.27	116.57	116.94	116.42	116.55b
General mean (type)		136.43c	136.91bc	138.41b	146.48a	
General mean (fertilizer)		139.45	139.47	139.55	139.74	

*The values belonging to the same letter group are not different according to Duncan%5

Table 2: The harvesting time averages of different field and fertilizer dose applications of hyacinth types and groups (day)

Plot	Varieties	Fertilizer dozes				Mean
		0 kg da ⁻¹	4 kg da ⁻¹	8 kg da ⁻¹	12 kg da ⁻¹	
Field	Jan Bos	161.77	163.73	164.42	164.90	163.71b
	Carnegie	163.96	160.86	162.33	161.21	162.09b
	Blue Jacket	161.62	160.91	159.98	163.36	161.47b
	City of Haarlem	170.52	171.87	170.92	171.62	171.23a
	Mean	164.46	164.34	164.41	165.27	164.62a
	Jan Bos	115.18	111.97	112.62	112.16	112.98f
Greenhouse	Carnegie	114.94	116.22	116.77	116.25	116.05e
	Blue Jacket	118.30	119.83	119.64	118.78	119.14d
	City of Haarlem	125.41	127.47	127.86	127.73	127.12c
	Mean	118.46	118.87	119.22	118.73	118.82b
General mean (type)		138.34c	139.07bc	140.30b	149.17a	
General mean (fertilizer)		141.46	141.61	141.82	142.00	

*Values of the same letter groups are not different according to Duncan 5%

Table 3: Stalk thickness averages of different field and fertilizer applications of hyacinth types and groups (mm)

Plot	Varieties	Fertilizer doses				Mean
		0 kg da ⁻¹	4 kg da ⁻¹	8 kg da ⁻¹	12 kg da ⁻¹	
Field	Jan Bos	7.133	6.807	6.630	6.647	6.804
	Carnegie	8.047	9.027	8.693	8.913	8.669
	Blue Jacket	9.393	10.063	9.277	9.417	9.538
	City of Haarlem	11.600	12.033	11.827	11.630	11.773
	Mean	9.043	9.482	9.107	9.152	9.196b
Greenhouse	Jan Bos	8.073	8.840	8.700	9.140	8.688
	Carnegie	10.557	10.310	10.907	10.243	10.504
	Blue Jacket	11.450	11.947	11.883	11.897	11.794
	City of Haarlem	13.110	12.957	13.000	13.473	13.135
*	Mean	10.797	11.013	11.123	11.188	11.030a
General mean (type)		7.746d	9.587c	10.666b	12.454a	
General mean (fertilizer)		9.920	10.247	10.115	10.170	

*The values of the same letter groups are not different according to Duncan 5%

Table 4: Floret length averages of hyacinth types at different field and fertilizer dose applications and groups (mm)

Plot	Varieties	Fertilizer doses				Mean
		0 kg da ⁻¹	4 kg da ⁻¹	8 kg da ⁻¹	12 kg da ⁻¹	
Field	Jan Bos	21.297	19.070	18.683	17.923	19.243
	Carnegie	26.220	32.557	29.817	33.923	30.629
	Blue Jacket	25.817	26.540	28.140	26.157	26.663
	City of Haarlem	24.460	25.777	24.463	22.340	24.260
	Mean	24.448	25.986	25.276	25.086	25.199b
Greenhouse	Jan Bos	28.567	29.440	29.470	25.463	28.235
	Carnegie	41.720	42.620	44.440	42.863	42.911
	Blue Jacket	36.497	37.037	37.077	37.117	36.932
	City of Haarlem	36.147	35.930	34.330	35.560	35.492
*	Mean	35.732	36.257	36.329	35.251	35.892a
General mean (type)		23.739d	36.770a	31.798b	29.876c	
General mean (fertilizer)		30.090	31.121	30.802	30.168	

*Values of the same letter groups are not different according to Duncan 5%

Table 5: The floret quantity averages of different field and fertilizer dose applications of the hyacinth types and averages (number)

Plot	Varieties	Fertilizer doses				Mean
		0 kg da ⁻¹	4 kg da ⁻¹	8 kg da ⁻¹	12 kg da ⁻¹	
Field	Jan Bos	25.210	24.950	24.210	26.660	25.257
	Carnegie	15.183	15.020	16.380	15.057	15.410
	Blue Jacket	23.033	23.210	19.040	22.907	22.048
	City of Haarlem	33.563	32.650	32.533	29.247	31.988
	Mean	24.247	23.958	23.041	23.468	23.678b
Greenhouse	Jan Bos	29.157	27.030	26.143	26.953	27.321
	Carnegie	16.073	16.553	16.057	15.533	16.054
	Blue Jacket	23.417	22.803	22.637	21.677	22.633
	City of Haarlem	33.830	33.860	35.430	36.377	34.874
*	Mean	25.619	25.062	25.067	25.135	25.221a
General mean (type)		26.289b	15.732d	22.340c	33.436a	
General mean (fertilizer)		24.933	24.510	24.054	24.301	

*Values of the same letter groups are not different according to Duncan 5%

The lowest average was obtained at field conditions with 15.41 mm in City of Haarlem type and the highest average was obtained greenhouse conditions with 23.06 mm in Carnegie type (Table 4).

Number of florets: It is announced that hyacinth flowers have different colors of florets (between 15-30 in quantity) in their cylindrical clusters. The results obtained from the experiment are in accord with the results that the researcher had obtained. It is shown in Table 5 that the

number of florets are not affected much by the fertilizer application. It is thought that it is more relevant with the type and the maximum value is obtained at 0 kg fertilizer dose.

CONCLUSIONS

This study was done in order to determine the planting and landscape usage of different types of hyacinth flowers around Van. It was found that as far as

usage as cut flowering and landscape usage is concerned, fertilization has no effects on full flowering time and Jan Bos type is the earliest type to flower in open field and the City of Haarlem is the latest one to flower.

It was also found that fertilization didn't effect harvesting time and Jan Bos was the earliest one to be harvested with 112.98 days in average whereas City of Haarlem was the latest one to be harvested with 171.23 days.

The thickest stalk was measured at City of Haarlem planted in greenhouse with 13.14 mm and the thinnest stalk was measured at Jan Bos raised in the open field with 6.80 mm. Since the thickest stalk thickness was obtained at City of Haarlem, it thought that this type is the most appropriate one to be used for cut flowering, being planted in greenhouses.

At the height factor, which is important at usage, the highest average value was obtained with 212.86 mm at City of Haarlem under greenhouse conditions, whereas the lowest value was obtained with 126.08 mm at Blue Jacket type under open field conditions.

At the height factor, which is criterion of flower quality, the lower average was obtained at the Canegie type planted under open field conditions and the highest average was obtained at City of Haarlem planted under greenhouse conditions.

It was determined that fertilization had no significant effect on the flower qualities of the examined hyacinth flowers which are bulb having flowers. This result is closely related to the fact the underground depot organ bulb doesn't need any extra fertilizer to grow.

It is mentioned that prior to planting of hyacinth, some artificial fertilizer can be used if necessary (Beazley, 1974).

In conclusion, as it can be understood, planting should be done under greenhouse conditions in order to obtain cut flowers from hyacinth. However, with planting in the open field despite the fact that flower heights are low, they can be used for landscape architecture with the removal of snow from the ground. In this performed study, it is seen that in both types of environments, hyacinth planting can be done without the need of any fertilization process.

REFERENCES

- Anonymous, 1999. Ornamental Plants Growing. Turkish Agricultural Foundation Research Pub.40 Yalova, 8.
- Beazley, M., 1974. Your Flower Garden. Mitchell Beazley Marketing Limited, Artists. House, Great Britain, pp: 224.
- Ferguson, N., 1992. Right Plant, Right Place. New York, pp: 292.
- Gulser, F., 1992. The productivity situations of the Van Lake Basins big soil groups. M.Sc Thesis, YYU. Science Enst. Van, Turkey.
- Gunes, A., M. Alpaslan and A. Inal, 2002. Plant nutrition and fertilize. Ankara University, Agricultural Faculty 1526, Ankara, pp: 576.