

LOW TEMPERATURE SELECTION, 1978-79

Joe J. Hanan and Anita Moxon¹

Low temperature selection on carnations has now been carried on since 1975. Sufficient cuttings were obtained last year to afford a reasonable test population. The results this year (Tables 1 and 2) give us some doubt as to whether it will be possible to provide selections that are sufficiently different from the usual to permit deliberate production at a 48°F night temperature.

Space requirements made it mandatory that we utilize a double polyethylene, air-inflated house with plants directly in the ground the last two years. Selections made by Niles Riese and Danielle Gianotti had been increased and a direct comparison was made with some cultivars that had not been previously selected. The plants were benched on June 14, given a single pinch July 3, and a complete second pinch. The plant density was deliberately reduced to 2.5 per sq. ft. with records kept on a row basis. Production began in November, increased through December with the peak beginning in January and February, and declining slightly in March. Records were terminated the first of April.

We ranked the selections by yield and quality (Tables 1 and 2). Although there were statistically significant differences between selections, those differences were not sufficient, on a row basis, to separate unselected cultivars from those previously selected for growing at 48°F. As the result of this year's work, we have selected IV-7NR and VI-1NR, Elliott's White and Atlantis for further work this coming winter, and

for increase. In addition, we also made selections from single rows of IV-2 (Elliott's White), VI-3NR (Atlantis), VII-1NR (CSU Pink), II-2 (White No. 1) and VIII-3 (CSU Red). We will be discarding at least 75% of all previous selections.

There are two problems that may be working against us in this selection program. First, is the fact that grower experience with double poly for carnations has been generally unsatisfactory. The comments have usually been in regard to low light during the winter period. We have grown standards under double poly for several years with good results, and the yields in Table 1 do not appear unreasonable — although they were not as high as carnations grown under fiberglass in raised benches (preceding article in this bulletin). The second problem is the observation that production for many cultivars tends to decline the further one goes from the original shoot-tipping process. Some of the present selections are several years from their first shoot-tipping, and the variability may be due to the fact that we have not attempted to clean them up. The point might be made that we are not assured of the stability of the various selections. It would appear from this year's results, that stability for selection to low temperature regimes is not great in the carnation. Also, selection on a row basis is not sufficient for good statistical data in a limited population. Selection becomes more dependent upon good visual observation, and is dependent upon a long period of practical experience in this type of work.

Table 1: Low temperature selections, ranking according to yield, 1978-79. Benched in the ground, under double poly, June 14, 1978, grown at 48° F night, with two pinches, records for 5 months, November through March, 1979, 2.5 plants per sq. ft.

Code number ^z	Variety	Average yield per row	Yield per plant	Yield per sq. ft.
VIII-3	CSU Red	79.2	13.2	33.0
VI-1NR	Atlantis	74.5	12.4	31.0
VI-3NR	Atlantis	72.7	13.7	34.2
IV-7NR	Elliott's White	71.0	11.8	29.6
VII-1NR	CSU Pink	69.8	11.6	29.1
IX-4	Scania	68.5	11.4	28.5
—y	Scania	66.3	11.1	27.6
—y	White No. 1	66.3	11.1	27.6
II-2	White No. 1	66.2	11.0	27.6
VII-6	CSU Pink	65.5	10.9	27.3
III-3NR	White Pikes Peak	64.8	10.8	27.0
IV-2	Elliott's White	64.8	10.8	27.0
I-1NR	Improved White	64.0	10.7	26.7
—y	Crowley's Pink	63.7	10.6	26.5
—y	Elliott's White	63.2	10.5	26.3
II-3	White No. 1	62.0	10.3	25.8
VII-2NR	CSU Pink	58.5	9.8	24.4
IX-3NR	Scania	57.3	9.6	23.9
III-1NR	White Pikes Peak	54.0	9.0	22.5
VIII-2NR	CSU Red	51.0	8.5	21.3

^zRoman numerals refer to individual plant selections made by Gianotti in 1975-76. Those followed by an "NR" are selections made in 76-77 and 77-78 by Riese.

^yCultivars planted without prior selection, directly from the mother block.

¹Professor and CFC.A Scholar.

Table 2: Low temperature selections, ranking according to mean grade^z, 1978-79. Benched in the ground, under double poly, June 14, 1978, grown at 48° F night, with two pinches, records for 5 months, November through March, 1979, 2.5 plants per sq. ft.

Code number ^y	Variety	Average mean grade each cultivar
VII-2NR	CSU Pink	4.45
IV-7NR	Elliott's White	4.29
III-1NR	White Pikes Peak	4.17
II-2	White No. 1	4.01
VI-1NR	Atlantis	3.97
IV-2	Elliott's White	3.95
VII-1NR	CSU Pink	3.95
III-3NR	White Pikes Peak	3.87
VI-3NR	Atlantis	3.86
—x	White No. 1	3.86
II-3	White No. 1	3.86
VIII-2NR	CSU Red	3.83
—x	Crowley's Pink	3.83
VIII-3	CSU Red	3.82
VII-6	CSU Pink	3.82
VI-3NR	Atlantis	3.73
IX-3NR	Scania	3.68
—x	Scania	3.63
—x	Elliott's White	3.54
IX-4	Scania	3.46
I-1NR	Improved White	3.22

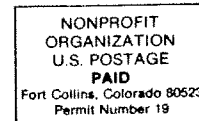
^zMean grade calculated by assigning the numbers 5, 4, 3 and 2 to the grades, beginning with fancy. SAF standard grades employed.

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^xCultivars planted without prior selection, directly from the mother block.

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Dick Kingman, Executive Director
2785 N. Speer Blvd., Suite 230
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Direct inquiries to:
Office of the Editor
Horticulture Department
Colorado State University
Fort Collins, Colorado 80523