

CARNATION GROWTH UNDER GLASS, MYLAR AND FIBERGLASS PANELS--REPORT III

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Two progress reports (1, 2) have been issued previously on the growth response of carnation under glass and polyester fiberglass. The present report compares the growth of 4 varieties of carnation for 50 1/2 weeks under 1) greenhouse glass, 2) 3-year-old polyester fiberglass panels, and 3) new Mylar W1.

Additional bracing was added to one of the wooden frame houses previously covered with coral fiberglass. This bracing included gussets where the rafters joined the sideposts and turn-buckle braces across both diagonals of every rectangle in the construction. The mylar was stretched

1/ S. A. Spomer carried on this work while a senior Horticulture student at Colorado State University.

across the rafters or posts and secured very tightly by tack strips. Other than covering, all plants and environments in the 3 houses were as nearly identical as was possible to attain.

Rooted cuttings of the varieties White Pikes Peak, Safari, White #86, and Dark Pink #71 were planted in heat treated soil on June 2, 1962. These plants were pinched once and flowers were cut from September 23, 1962 to June 15, 1963. The flowers were graded according to the 4-grade Colorado System in which weight, size or stem length can limit the grade.

Yield and grade of the 4 varieties for 50 1/2 weeks of growth are shown in Table 1, along with totals for the 3 coverings. There were expected differences between varieties but no obvious interaction between variety and covering. The Mylar house produced 320 more flowers, a difference in yield of 8 percent. Yield from the glass and fiberglass houses was the same although the average grade of flowers produced under fiberglass was

significantly higher. The percents of fancy (top grade) flowers for glass and Mylar were 46 and 47, whereas for fiberglass 53 percent of the flowers were in the fancy grade. This difference in fancy grade is primarily due to longer stems on the first crop and has shown up each year of our tests. Flowers produced in the short grade, most of which were in the first crop, were: fiberglass - 383, Mylar W1 - 550, and glass - 633.

Excellent growth of high light requiring crops can be obtained under Mylar W1. In this test an 8 percent increase in yield was obtained. This could have been due to more light and to a slightly modified quality of light. Mylar W1 filters out the ultraviolet and shortest violet rays of the solar spectrum.

No mechanical damage was experienced with either Mylar or fiberglass houses, although winds of 75 mph or higher damaged the glass house on several occasions. All three houses are exposed to the full blast of northwest winds.

Table 1. Yield and grade of 4 carnation varieties under greenhouse glass, 3-year-old polyester fiberglass, and Mylar W1 at Fort Collins, Colorado, from June 25, 1962 to June 15, 1963.

Variety	Design	Short	Standard	Fancy	Total	Mean grade	Percent fancy
FIBERGLASS							
White #86	65	99	327	567	1058	4.32	
Safari	18	217	288	362	885	4.12	
Dark Pink #71	60	24	277	570	931	4.46	
White Pikes Peak	31	43	339	510	923	4.44	
Total	174	383	1231	2009	3797	4.34	53
GLASS							
White #86	66	170	295	470	1001	4.17	
Safari	32	240	258	326	856	4.03	
Dark Pink #71	52	79	359	499	989	4.32	
White Pikes Peak	39	144	330	482	995	4.26	
Total	189	633	1242	1777	3841	4.20	46
MYLAR W1							
White #86	63	133	387	566	1149	4.27	
Safari	33	202	317	331	883	4.07	
Dark Pink #71	67	61	364	552	1044	4.34	
White Pikes Peak	35	154	394	502	1085	4.26	
Total	198	550	1462	1951	4161	4.24	47

Table 2. Carnation yield under glass and polyester fiberglass.

	Glass		Fiberglass		Yield difference
	Yield	Percent fancy grade	Yield	Percent fancy grade	
First year (44 weeks)	3961	34	4423	44	+12%
Second year (53 weeks)	4720	41	4839	48	+ 2 1/2%
Third year (50 1/2 weeks)	3841	46	3797	53	-1%