Flower & Nursery Report
for commercial growers
FALL 1983 and SPRING 1984

CONTENTS

Besemer 83

Seasonal Carnation Vaselife

Seward T. Besemer and Michael S. Reid

Introduction

The primary objective of this experiment was to determine flower vaselife of White Sim carnations each month for a 1-year period (extended to 13 months). Flowers were obtained from three growers' locations, and kept as separate experiments, since each greenhouse was considered to be climatically different. Another objective of the experiment was to test the value of overnight pretreatments by the producer, if nothing else was done in the marketing system, as compared with adding a floral preservative in the vaselife determination.

White Sim flowers were obtained once each month, freshly harvested and directly from the growers, and kept out of water about 4 hours until placed into the pretreatments. The four pretreatments were deionized water, 1mM of STS (silver thiosulfate), 1mM of STS + 10 percent sucrose, and 200 ppm Physan-20 + 10 percent sucrose. Twenty-four flowers from each grower source were placed in each solution, and these were held at 0° to 5° C overnight, for a period of 18 to 20 hours. The following day each pretreatment group of 24 flowers was subdivided into 12 flowers to three vases of deionized water, and 12 flowers to three vases containing 2 percent Floralife in deionized water. Therefore, three replications were made of each final vaselife treatment. The keeping room had continuous florescent light with an intensity of 10 lux (100 fc). The temperature was a nearly constant 22° C night and day, except for July and August when the temperature was 25° to 27° C. Relative humidity was recorded as 50 percent and confirmed with a sling psychrometer. Flowers were checked on a daily basis and removed when flaccid. Days of flower life are determined from the date of harvest.

Results and Discussion

Table 1 shows the simple averages for days of flower life from harvest for the three growers for the 13-month period. There are few, if any, significant differences among flowers' keeping quality, which tends to disprove the belief that any major climatic differences of the greenhouse locations or grower ability had any substantial affect on flower longevity. Another surprising result is the small variation in flower longevity during the 13 months when no treatment is used. Flower

TABLE 1. Seasonal carnation vaselife, February 1982 through February 1983. Average days of flower life from harvest for three growers

Treatments		February			March			April			May		
		Grower			Grower			Grower			Grower		
Overnight at 5° C	Vase at 21° C	1	2	3	1	2	3	1	2	3	1	2	3
DI water	DI water	6.9	6.6	5.6	7.1	7.3	6.6	6.5	7.2	7.0	6.8	7.9	6.7
DI water	2% Floralife	8.9	11.0	9.0	9.4	10.3	9.3	8.0	9.8	9.7	7.9	10.8	9.2
STS	DI water	17.0	21.8	17.2	15.9	19.4	15.3	18.7	22.3	16.8	16.1	19.8	13.3
STS	2% Floralife	26.0	22.2	25.5	17.8	22.6	19.8	22.2	24.3	22.6	17.3	24.5	24.0
STS + 10% sugar	DI water	20.4	19.0	20.0	14.5	17.8	18.2	19.4	18.2	15.8	14.5	14.4	11.3
STS + 10% sugar	2% Floralife	23.3	20.2	20.0	19.2	21.8	17.6	21.8	24.6	17.4	22.2	23.0	18.8
Physan + 10% sugar	DI water	18.7	13.1	19.8	8.6	11.5	8.3	8.6	8.4	8.3	8.2	8.9	7.1
Physan + 10% sugar	2% Floralife	26.4	23.7	24.8	11.2	14.3	10.6	10.4	11.8	10.0	9.7	10.0	10.4
		June			July			August			September		
DI water	DI water	6.3	6.6	6.4	6.7	6.1	5.3	5.6	7.2	5.9	6.1	5.9	6.1
DI water	2% Floralife	8.1	8.5	8.8	9.3	9.3	9.6	8.7	9.2	7.8	7.8	7.5	8.9
STS	DI water	9.9	9.8	13.4	7.9	9.3	7.6	6.9	7.8	6.8	6.8	7.6	7.0
STS	2% Floralife	14.3	17.4	18.3	13.4	12.8	17.6	12.3	12.0	10.2	10.7	12.3	12.7
STS + 10% sugar	DI water	11.4	8.3	9.1	7.4	8.3	7.8	7.4	8.3	6.8	6.8	7.0	7.4
STS + 10% sugar	2% Floralife	15.1	18.0	16.9	13.4	16.9	14.9	11.3	11.8	10.6	11.5	10.8	12.1
Physan + 10% sugar	DI water	7.6	7.8	7.5	6.9	6.8	6.0	7.0	7.0	6.9	7.2	7.3	6.9
Physan + 10% sugar	2% Floralife	9.6	9.9	9.8	9.8	9.6	10.0	9.4	10.1	8.3	10.5	9.2	11.0
		October			November			December			January			February		
DI water	DI water	6.5	6.7	6.4	6.0	5.3	7.2	6.3	6.7	7.5	7.2	6.2	6.7	7.1	6.7	6.4
DI water	2% Floralife	8.5	8.6	7.5	7.6	6.8	8.8	7.8	9.3	8.9	8.3	8.6	7.7	10.5	9.7	12.0
STS	DI water	7.1	6.9	7.9	6.8	5.8	7.7	11.1	7.5	8.2	8.1	8.8	8.7	7.4	7.4	6.9
STS	2% Floralife	11.2	10.6	11.8	9.0	8.8	10.6	13.7	10.2	12.7	12.2	8.0	12.8	14.4	13.5	14.3
STS + 10% sugar	DI water	8.0	7.9	7.9	6.4	6.3	8.1	7.9	7.8	9.0	8.7	7.3	7.0	7.3	8.2	7.8
STS + 10% sugar	2% Floralife	11.6	12.1	12.8	9.8	9.8	13.8	10.2	11.2	13.7	12.9	11.2	12.3	13.0	13.0	14.0
Physan + 10% sugar	DI water	7.1	7.3	6.9	7.1	6.9	8.0	8.6	9.3	9.6	9.3	6.4	8.1	8.7	8.5	8.6
Physan + 10% sugar	2% Floralife	10.2	10.3	10.8	10.6	8.8	12.3	12.2	10.8	13.7	10.3	8.6	10.8	12.4	13.0	14.1

Note: DI refers to deionized water; STS refers to silver thiosulfate.

vaselife for February 1982 was significantly greater for most treatments than for February 1983. During February to May of 1982, the flowers seemed to respond dramatically to all pretreatments of STS, STS + sucrose and Physan + sucrose. In fact, the authors are suspicious that the STS stock solution lost much of its effectiveness sometimes after the fourth month (May 1982). In every month, however, a positive gain in flower life was demonstrated with an STS, STS + sucrose, or Physan + sucrose pretreatment when only DI water was used thereafter in the vaselife determination. With few exceptions, the addition of sucrose to either STS or Physan as a pretreatment gave no additional gain in flower life (see tables 2 and 3). The use of 2 percent Floralife in the vaselife solutions (after the grower's responsibility) added 2 to 5 days of flower life regardless of the pretreatments used. But the largest differences in potential flower life were mainly due to the use of an STS pretreatment at the grower level. In fact,

TABLE 2. Seasonal carnation vaselife, February 1982 through February 1983. Average days of flower life from harvest for three growers

Treatments		Month											
Overnight at 5° C	Vase* at 21° C	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
DI water	DI water	6.4	7.0	6.9	7.1	6.4	6.0	6.2	6.0	6.5	6.2	6.8	6.7	6.7
STS	DI water	18.7	16.9	19.3	16.4	11.0	8.3	7.2	7.1	7.3	6.8	8.9	8.5	7.2
STS + 10% sugar	DI water	19.8	16.8	17.8	13.4	9.6	7.8	7.5	7.1	7.9	6.9	8.2	7.6	7.8
Physan + 10% sugar	DI water	17.2	9.5	8.4	8.1	7.6	6.6	7.0	7.1	7.1	7.3	9.2	7.9	8.6

*All vaselife in DI water only, so that all differences are due to pretreatments overnight (20 hrs. at 5° C).

TABLE 3. Seasonal carnation vaselife, February 1982 through February 1983. Average days of flower life from harvest for three growers.

Treatments		Month											
Overnight at 5° C	Vase* at 21° C	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
DI water	2% Floralife	9.6	9.7	9.2	9.3	8.5	9.4	8.6	8.1	8.2	7.7	7.3	8.2	10.7
STS	2% Floralife	24.6	20.1	23.0	21.9	16.7	14.6	11.5	11.9	11.2	9.5	12.2	11.0	14.1
STS + 10% sugar	2% Floralife	21.2	19.5	21.2	21.3	16.7	15.1	11.2	11.5	12.2	11.1	11.7	12.1	13.3
Physan + 10% sugar	2% Floralife	25.0	12.0	10.7	10.0	9.6	9.8	9.3	10.2	10.4	10.5	12.2	9.9	13.2

*All vaselife in 2% Floralife, so that all differences are due to pretreatments overnight (20 hrs. at 5° C).

this experiment is a clear demonstration that if STS was used at the grower level, and a floral preservative used by all future parties, this combination provides the best potential cut flower life of carnations.

The take-home message for all carnation growers is: Treat your carnations immediately after harvest with STS and send a care tag with each bunch instructing retailers and consumers to use a floral preservative.

Seward T. Besemer is Cooperative Extension Farm Advisor, San Diego County; and Michael S. Reid is Postharvest Physiologist, Cooperative Extension, UC Davis.

of California. However, some seed companies offer cultivars described as heat resistant.

2 inch pots on May 24. Planting distance was 12 inches within rows spaced 40 inches apart. Initially the plants were

duction 2 months after planting in the field.

Some cultivars in the bedding plant