

Performance of *Angelonia* Cultivars as a Summer Greenhouse Cut Flower

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Introduction

Angelonia is a relatively new plant used primarily for mixed patio containers for spring and summer garden center sales. *Angelonia angustifolia* or summer orchid has indeterminate spikes of purple, purple and white, pink, and white orchid-like flowers that are about 1 inch (2-3 cm) in diameter. Preliminary trials demonstrated that cut stems had good post-harvest life. These trials were initiated to determine the potential yield and cut stem quality of *Angelonia*.

Materials and Methods

Angelonia cultivars were grown as a greenhouse cut flower in the summers of 1999 and 2000. Plants were grown in 4 inch (10 cm) pots at a density of 9 plants ft² (pot to pot,) with daily ebb-flood irrigation with a fertilizer solution with an EC of 0.6-1.2 mS cm⁻¹ from Peters 20-10-20 fertilizer. Cut stems were harvested twice per week. Greenhouse average daily temperatures ranged from 76 to 85 F (24C - 29C) each year, evaporative cooling was not used.

In 1999, plants of the non-patented purple/white cultivar were planted week 21 (late May). In 2000, plants of the non-patented cultivars (purple/white, white, purple, pink) and the patented, virus-indexed AngelMist™ cultivars (purple, white, pink, lavender, deep plum) from Ball FloraPlant were planted week 16 (mid April).

Results

In 1999, the non-patented purple and white cultivar produced 58.5 plants ft² from week 27 to 48. Cut stems were harvested from 36 to 98 cm long and over 60% of the cut stems were over 50 cm long (Table 1). It was clear that angelonia could be a summer greenhouse cut flower.

In 2000, cut stems were harvested from week 21 to week 41. Harvest was concentrated during weeks 22-23, weeks 27-28 and weeks 36-38. The non-patented purple/white cultivar had longer mean stem length compared to the other cultivars (Table 1).

Angelonia has relatively high cut flower yields; an average yield of 78 stems ft² for approximately 20 weeks of greenhouse production. The cut stem production leads to relatively high returns for summer greenhouse cut flower production. At prices of only \$.10/stem, gross returns would be \$7.80 ft⁻² (\$84.10 m⁻²).



Figure 1. *Angelonia* AngelMist cultivars 'White', 'Purple Stripe', 'Purple' and 'Pink'.

General recommendations from these trials:

- **Varieties** - In these trials, the AngelMist™ cultivars had higher yields than non-patented cultivars, presumably because these varieties were clean (cucumber mosaic virus had been removed from the plants).
- **Light** - These plants prefer full sun, high light conditions.
- **Temperatures** - Hot summer greenhouse conditions are fine as long as the plants get sufficient water. Evaporative cooling was not used, these plants grow well in the summer heat in Kentucky.
- **Spacing** - Plants in these studies were grown at 9 plants ft². It seems somewhat lower density, 7-8 plants ft², could increase per plant yields and make harvest easier.
- **Irrigation** - Ebb flood irrigation was automated for these trials and made watering easy. Overhead watering is possible, but the plants may be knocked down.
- **Support** - One layer of cut flower mesh is probably a good idea, but the plants are difficult to get into for harvest.
- **Fertilizer** - Less fertilizer is better than more fertilizer, but I don't have specific recommendations. My current feeling is that the plants should be fertilized at 150-200 ppm for 2-3 weeks after harvest to get new shoots growing rapidly, then reduce fertilizer to zero up to harvest. This allows strong straight stems to form with few lateral branches.
- **Harvest** - It seems best to cut stems as low as possible at harvest and allow new shoots to arise from the base. It also seems best to remove all stems over the 2-3 weeks of harvest to allow the new shoots to develop together.
- **Insects and disease** - These plants are quite free of insects and disease. Whitefly will get on them if the insects are around in high numbers.
- **Vase life** - Our preliminary trials showed cut stems had a vase life of 14-18 days. The flowers continue to develop, but colors do fade as flowers open.
- **Fragrance (odor) and glandular hairs** - Angelonia leaves and stems are covered with glandular hairs. These hairs exude sticky aromatic compounds, some workers and florists might find this objectionable. Workers will definitely have to wash their hands after handling the stems and removing the lower leaves.

Figure 1. The weekly harvest of *Angelonia* cut stems (mean of all cultivars) in the summer of 2000.

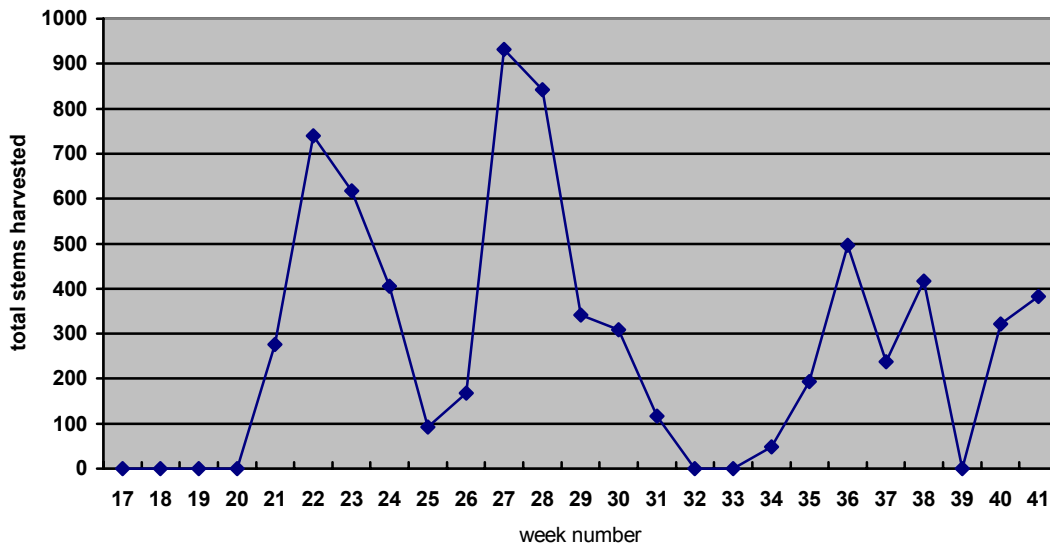


Table 1. Stem length and stem length grades at harvest for nine *Angelonia* cultivars.

		Percent in stem length grades				
	Mean stem length (inches)	14-18 in	18-24 in	24-28 in	28-32 in	> 32 in
Summer 1999						
Purple/White	24.0	13 %	34 %	17 %	20 %	17
Summer 2000						
Purple/White	23.6	6	25	40	23	6
White	22.4	8	36	38	13	3
AngelMist White	21.6	14	40	31	14	2
AngelMist Purple	21.6	19	35	26	15	4
Purple	21.2	19	35	26	15	4
AngelMist Lavender	20.9	19	45	30	6	0
Pink	20.0	26	47	23	4	0
AngelMist Pink	19.7	29	48	20	3	0
AngelMist Deep Plum	18.9	41	40	17	2	0

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