

Warm Climate Production Guidelines for *Plectranthus*

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Plectranthus Mona Lavender, an interspecific hybrid patented with Ball Corporation. Is an excellent example of the beauty this group of plants can offer to growers and Florida consumers.

We were doing some work for Ball Floraplant on *Mona Lavender* in response to a lot of customers who were having trouble getting this incredible plant into flower. There are a lot of confusing reports out there from industry on what the problems have been, but I think the main one was having plants that did not initiate flowers quickly enough and then grew too tall vegetative. Once the plant is in bloom no one has any problems, except that they can't get enough of them. Everyone I know who produced this plant sold out immediately and I think it will hold its place

as a top novelty crop for a quite a few more years.

We ran a simple photoperiod study as follows.

Methods: Greenhouse temperatures were maintained at 65°F night and ranged from 75°F-84°F day. Rooted liners from Ball Floraplant were pinched at planting and placed immediately under photoperiod treatments. Plants were grown in 4" pots using Fafard number 52 mix (peat-lite type) with 150 ppm 20-20-20 constant feed. We evaluated time from plant to first visible bud and full flower of crop. Height and width measurements were taken and observations made on plant development and quality. Measurements were also taken on number of stems formed per plant.

Photoperiod treatments were: 10 HR (standard chrysanthemum scheduling), 12 HR, 14 HR, & 16 HR days.

Then experiment was repeated at three planting dates: week 37, 02 (Sept. 03, 02), week 49, 02 (Dec. 04, 02), week 10, 03 (Mar. 05, 03)

What we found:

Well, we learned a couple of things from this study. The main point is we could shut off flowering entirely by lighting to a 16HR day. These plants never budded in the experiment. So lesson 1: The longer the day length, the longer the plants grow vegetative. The quickest treatments into flower were 12HR days, then about 2 weeks later and 2-3" taller were the 14HR plants. So what happened with 10HR days? These plants flowered approximately the same time as 12 HR treatments, but were delayed by heat delay (both at initiation and

Table 1 – Average days to visible bud, full flowers, flower count, and height for all three planting dates of *Plectranthus* ‘Mona Lavender’ grown at the University of Florida.

T#	Photoperiod Treatment	Days to		# of raceme in bloom at full flower	Height of plants at sale (cm)
		Visible bud	Full flower		
1.	10 hour	34	60	10.0	49
2.	Natural Day	30	55	12.0	45
3.	14 hour	44	77	8.5	58
4.	16 hour	--	--	--	72
	Hsd .05	1.5	3.0	1.0	4.5

during development) under blackcloth and were of a lower quality because there was not enough light in a given day to develop strong plants.

So what does it mean for growers?

It means you can flower Mona under a 14 or less hour photoperiod, 14HR of light will flower later and be larger than a 12 HR crop. A word of caution: I’ve seen a lot of growers with light pollution from street lights etc. that have hampered their crops flower initiation. During the vegetative stages of growth ‘Mona Lavender’ seems to be sensitive to this, the same way poinsettias are sensitive to light pollution. The good news is that once flowers are open and the plant is in full bloom it is slower to revert to non-flowering. So, I’ve had Mona Lavender blooming all summer in the shade and 2-3 hours of full sun in Florida. The shade plants always look better. Last note: Cool

nights help lock in flower initiation, again like poinsettias, so if you can drop temperatures in the night cycle, you’ll speed initiation and deepen flower color in Mona Lavender.

Planting time did not really affect the time to flower, so under similar temperatures, plants will flower in roughly the same amount of time. This make sit easy to schedule crops for most seasons.

The cuttings all formed the same number of main branches after pinch, but it is flower initiation that gets all the secondary branching going and gives the plant its rounded habit. With out flower initiation you get long straight stems and a tall irregular habit.

Well that was fun! So, let’s try it with a whole bunch of *Plectranthus*

We ran the exact same study using 26 species and hybrids of *Plectranthus*, as well as Cat’s Whiskers (*Orthosiphon stamineus*) and Red Queen Trailing Coleus (*Solenostemon*

rheneltianus or *S. scutellarioides* – depending on who you listen to in taxonomy). We also drenched all plants with .25 ppm Paclobutrazol 2 weeks after pinch. The information in table 2 tells you what we found.

There were several cultivars that never bloomed. Some of them were heavily growth regulated by the application of Paclobutrazol, which kept them from growing very much, or flowering. Others are not reliable bloomers under the best of conditions; these include most of the *P. amboinicus* types, including 'Athens Gem'. *Plectranthus ciliatus* 'Gold Coin' has beautiful golden green foliage, but could not handle the higher light levels, and warm temperatures in this experiment and all plants were lost, so grow this one shaded and cool!

In the end all these tables mean some good things for *Plectranthus* as a crop. It means that there are long day and short day forms in nature, so breeders may be able to bring more of the great qualities without the photoperiod issues sometime in the future.

Best flowering forms:

My picks for best flowering forms include 'Mona Lavender' of course, but also *P. ecklonii* and *P. ecklonii* 'Erma' which are shrub-like reaching 5-6 in the landscape, and flowering purple and pink, respectively. There is a white form out there somewhere as well. These plants make an incredible late summer /fall display in the southern landscape, but landscape performance farther north is unknown. *Plectranthus* 'Nico' from Ball Floraplant also has a very nice flowering of small spikes of white-pink flowers. Both forms of *P. zuluensis* that we had in the trial were stunning but it took them over 90 days to get into flower, I'm hoping that is just heat delay because they have really come one strong since we

started to get cooler nights. The last plant on the list was a surprise, it was 'Zulu Wonder' from Euro American, this foliage form came out with 12-14" spikes of pale lavender pink and is incredible when it is in bloom. I think it has incredible potential but will require short days to flower it. That's OK it means northern growers can get flowers for spring sales.

Best foliage forms:

P. argentatus, and *P. argentatus* 'Variegatus' are definitely tops on my list, they are horsy and gangly without PGRs but extremely sensitive to them, both cultivars were overdosed at .25 ppm. However, in the landscape they excel in hot dry locations, flower freely all season (flowers are not very impressive) and add a strong gray tone to the landscape. *P. 'Nicoletta'* and *P. tomentosus* seem like the same plant to me, but give excellent gray color in a prostrate habit. Funny thing is that these are also monsters when they are not growth regulated and very sensitive to treatment as well. 'Athens Gem', *P. amboinicus* 'variegata', and 'Nicodemos' are all strong foliage interest in the green to white variegation area, all are somewhat upright and best in 4" or gallons. Don't forget *P. madagascariensis*, the variegated trailing type, with green and white leaves; it is a must in most mixed containers. Last of all *Plectranthus ciliatus* 'Gold Coin' (and other similar types) have the lime green foliage that really works great in shady mixed containers.

Another bit of good news is that according to the International Plant Names Index (<http://www.ipni.org>), there may be as many as 700 different kinds of *Plectranthus* out there. Hmmm... that would be almost a third the number there are of *Petunia* cultivars!

Production guidelines for *Plectranthus* Species and hybrids.

Fertilization – 150 – 200 ppm balanced fertility

Watering – moist, but don't keep this plant wet all the time; soaked soil makes for a weak root system and later lodging.

Media – any commercial peat-lite or peat bark mix

Production Temperatures – 55F night, 75-85 F day

Light level – Avoid intense sun, I think in the south the plants look best under 50% shade. Obviously northern growers will get reduced light in the winter and may not need to shade at that time. In both field trials and production we've found that high light levels (un-shaded) bleach the foliage, reduce overall flowering, and plant quality.

Propagation – Ball Exclusive so propagation is prohibited unless licensed. Mona rarely produces seed, so seed production does not work.

Crop timing – From rooted cutting to salable 4" pots it takes about 8 weeks. For 6" or gallon (2 liners per pot) is about 8-10 weeks. This crop also screams to be used in baskets as well (3-5 liners per basket), add about 2-3 weeks for an 8" basket or larger.

Growth regulators – We've had good luck under warm southern conditions with a drench .25-1 ppm Paclobutrazol at 2 weeks after pinch, but the plants are also responsive to daminozide/ chlormequat sprays at low rates as well. Do not treat once flowering has begun.

Flowering – Photoperiod requirement varies all over the place depending on species. Mona Lavender flowers when days are 12 hours or less in length, but will be delayed by light pollution at night and high night temperatures. Other species are not photoperiodic, and others are similar to Mona but may require shorter days. See chart for species and hybrids tested.



Plectranthus amboinicus (Cuban Oregano) is an example of foliage interest provided by other member of this group of plants.

Finding the plants:

- Mona Lavender is an exclusive of Ball Floraplant: <http://www.ballfloraplant.com>, also look for the Nico, Nicoletta, and Nicodemos cultivars, good foliage interest.
- Other species are available from a variety of sources:
- Zulu Wonder from EuroAmerican Propagators <http://www.euroamprop.com>, this is also in the Proven Selections series. Sold as vegetative foliage interest, but a killer flowering in fall!
- Greenex has the Cape Angels series which I hope we will be trialing soon!: <http://www.greenex.com>
- Most of the species and unknowns in this article came from Silverhill Seed, a great array of species seed direct from South Africa: <http://www.silverhillseeds.co.za>
- There is also a nice general page from Andrew Hankey at the Witwatersrand National Botanical Garden. <http://www.plantzafrica.com/plantnop/plectranthus.htm>
- Kirstenbosch Botanical Gardens is also a great source of information.
- *Plectranthus madagascariensis*, *P. amboinicus*, and *P. argentatus* are available from multiple suppliers check with your broker.

Table 2 – Response to .25 ppm Paclobutrazol and photoperiod of 26 *Plectranthus*, Cat’s Whiskers (*Orthosiphon stamineus*), and Red Queen Trailing Coleus (*Solenostemon rheneltianus*). Plants without bloom dates had not initiated flowers within 70 days of treatment. Red shading = too much control and distortion of growth. Green Shading = good control and shaping of growth, no shading = no commercial level of control.

Species	PGR % control	Average days to flower by photoperiod			
		10 hr	12 hr	14 hr	16 hr
<i>Plectranthus</i> spp. #1	40	30	34	37	
<i>Plectranthus</i> spp. #2	10	38	50		
<i>Plectranthus tomentosus</i>	50	55			
<i>Plectranthus madagascariensis</i>	50				
<i>Plectranthus zuluensis</i> #1	40	39	40	44	
<i>Plectranthus zuluensis</i> #2	40	40	48	39	
<i>Plectranthus argentatus</i> 'Variegatus'	85				
<i>Plectranthus argentatus</i>	75				
<i>Plectranthus ecklonii</i>	50	41	69	69	
<i>Plectranthus purpuratus</i>	30	37			
<i>Plectranthus amboinicus</i> 'Athen's Gem'	25				
<i>Plectranthus spicatus</i> 'Nebspruit'	30				
<i>Plectranthus lanuginosus</i>	35	47	47	51	44
<i>Plectranthus ecklonii</i> 'Erma'	50	37			
<i>Plectranthus</i> x 'Nico'	75		58		
<i>Plectranthus ambiguus</i>	10	30			
<i>Plectranthus forsteri</i> 'Albo-marginatus'	25				
<i>Plectranthus ciliatus</i>	10	41			
<i>Plectranthus ciliatus</i> 'Gold Coin'	Dead	Dead	Dead	Dead	Dead
<i>Plectranthus spicatus</i>	30				
<i>Plectranthus dolichropodus</i>	10				
<i>Plectranthus</i> 'Zulu Wonder'	20		69		
<i>Plectranthus amboinicus</i>	40				
<i>Plectranthus</i> spp. #3	10	43	46	52	
<i>Plectranthus</i> spp. #4	10				
<i>Solenostemon rheneltianus</i> 'Red Queen'	30	58			
<i>Orthosiphon stamineus</i>	05	23	37	32	39
<i>Plectranthus</i> 'Mona Lavender'	20	31	38	39	