PGR Drenches Control the Growth and Flowering of Potted Eucomis ‘Leia’

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Eucomis species

- Pineapple lily
- Bulbous perennial
- 15 species
- Hardy to zone 6
- Many new cultivars available
Potted plants

• Some cultivars are naturally compact

• Plant growth regulators may be necessary for
  • Compact cultivars:
    • During the low light levels of the winter months
    • Under shade in high temperatures
  • Tall cultivars

‘Leia’ pineapple lily
Photo from GSBG
What we did

<table>
<thead>
<tr>
<th>Flurprimidol (Topflor)</th>
<th>Uniconazole (Sumagic)</th>
<th>Paclobutrazol (Piccolo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration [mg active ingredient (a.i.) per 6.5-in pot]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Untreated control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.25</td>
<td>0.25</td>
<td>0.5</td>
</tr>
<tr>
<td>0.5</td>
<td>0.5</td>
<td>1.0</td>
</tr>
<tr>
<td>1.0</td>
<td>1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>2.0</td>
<td>2.0</td>
<td>4.0</td>
</tr>
<tr>
<td>4.0</td>
<td>4.0</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Greenhouse forced 60/75 °F night/day temps

Drench stage: 2 in. height
Data we collected

- Days to visible bud
  - Top bracts of the inflorescence were visible deep in the center of the rosette of leaves

- Days to anthesis
  - First row of florets opened

- At anthesis:
  - Foliage height
  - Plant diameter
  - Inflorescence height & caliper
  - Number of inflorescences
  - Number of marketable plants

Reached anthesis with flowers and foliage that were at least 8 in. tall with no flower or foliage abnormalities

Marketable ‘Leia’ pineapple lily plant
What we learned

• As concentration increased:
  • Plant height was shorter
  • Plants were more compact
  • Days to anthesis increased

• Days to visible bud was not affected

• No phytotoxicities were observed
Inflorescence height

![Graph showing inflorescence height against concentration for Paclobutrazol, Uniconazole, and Flurprimidol.]
Foliage height

Similar trends for inflorescence height and plant diameter
Flurprimidol

• Greatest control over plant growth among all three PGRs

• 0.5 mg a.i. flurprimidol
  • 12 d increase in production time
  • 8% increase in marketable plants

• 2.0 and 4.0 mg a.i. treatments resulted in excessive stunting
Paclobutrazol

- 0.5 mg a.i. controlled foliage and inflorescence height by 23% and 15% from the control, respectively.
- 4.0 and 8.0 mg a.i. resulted in excessive stunting.
Paclobutrazol

- Extended production time by 10 d from control
- 25% increase in marketable plants

<table>
<thead>
<tr>
<th>Concentration (mg a.i.)</th>
<th>Days to anthesis from planting</th>
<th>Percent marketable plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>53.0 a&lt;sup&gt;y&lt;/sup&gt;</td>
<td>63 a</td>
</tr>
<tr>
<td>0.5</td>
<td>62.6 b</td>
<td>88 a</td>
</tr>
<tr>
<td>1.0</td>
<td>67.0 b</td>
<td>88 a</td>
</tr>
<tr>
<td>2.0</td>
<td>66.6 b</td>
<td>88 a</td>
</tr>
<tr>
<td>4.0</td>
<td>76.3 c</td>
<td>0 b</td>
</tr>
<tr>
<td>8.0</td>
<td>81.0 c</td>
<td>0 b</td>
</tr>
<tr>
<td>Significance&lt;sup&gt;x&lt;/sup&gt;</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

<sup>y</sup> Means with the same letters are not significantly different according to Tukey’s Multiple Comparison procedure at $P \leq 0.05$.

<sup>x</sup> P values were obtained using General Linear Models (GLM) procedures of SAS (Version 9.3, SAS Inst., Cary, NC).
Uniconazole

- 0.25 mg a.i. controlled foliage and inflorescence height by 25% from the control
- 4.0 mg a.i. resulted in excessive stunting
Uniconazole

- Extended production time by 4 d from control
- 12% increase in marketable plants

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<th>Concentration (mg a.i.)</th>
<th>Days to anthesis from planting</th>
<th>Percent marketable plants</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td>53.0 a&lt;sup&gt;y&lt;/sup&gt;</td>
<td>63 ab</td>
</tr>
<tr>
<td>0.25</td>
<td>56.8 a</td>
<td>75 a</td>
</tr>
<tr>
<td>0.5</td>
<td>58.8 ab</td>
<td>63 ab</td>
</tr>
<tr>
<td>1.0</td>
<td>60.8 ab</td>
<td>75 a</td>
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<tr>
<td>2.0</td>
<td>63.0 ab</td>
<td>75 a</td>
</tr>
<tr>
<td>4.0</td>
<td>64.4 b</td>
<td>0 b</td>
</tr>
<tr>
<td>Significance&lt;sup&gt;x&lt;/sup&gt;</td>
<td>0.0058</td>
<td>0.0101</td>
</tr>
</tbody>
</table>

<sup>y</sup> Means with the same letters are not significantly different according to Tukey’s Multiple Comparison procedure at $P \leq 0.05$.

<sup>x</sup> P values were obtained using General Linear Models (GLM) procedures of SAS (Version 9.3, SAS Inst., Cary, NC).
Summary

• 0.5 mg a.i. flurprimidol
  • 12 d increase in production time
  • 8% increase in marketable plants

• 0.5 mg a.i. paclobutrazol
  • 10 d increase in production time
  • 25% increase of marketable plants

• 0.25 mg a.i. uniconazole
  • 4 d increase in production time
  • 12% increase of marketable plants

• May be beneficial to prevent postharvest stretch in low light retail environments

Control treatment
Take home info

• Recommended concentrations:
  a) Paclobutrazol at 0.5 mg a.i.
  b) Uniconazole at 0.25 mg a.i.
  c) Flurprimidol at 0.5 mg a.i.

• Based on:
  • Percent of marketable plants
  • Foliage and inflorescence height control
  • Non-excessive lengthening of days to anthesis
Thank you

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