Crested floatingheart

Lyn Gettys, PhD and Ian J. Markovich
University of Florida FLREC • lgettys@ufl.edu
What is crested floatingheart?

- *Nymphoides cristata*
  - Asia
  - Ornamental – “Snowflake”
  - Collier County (1996)
  - S Carolina (2006)

- Legal status
  - FLEPPC Category II (2005)
  - FLEPPC Category I (2009)
  - FDACS Noxious Weed List (2013)
Identification of crested floatingheart
How bad is crested floatingheart?

- Seeds???
- Ramets?
Ramet production

- 5 substrates (100% sand – 100% organic)
- 4 fertilizer rates (0 g/L – 4 g/L)
- 4 reps
- Single small plant

- Monthly ramet counts for 6 months

- 4 runs (Dec/Mar/Jun/Sept)
Ramet production

• 1 MAP: average 4 ramets/plant (~320 total)
  • All ramets removed from tanks
  • “Back to zero”

• 2 MAP: average 70 ramets/plant (~5600 total)

• 3 MAP: counting 2x per month
## Ramet production – results

- **Substrates:** no effect
- **Fertilizer:** mo’ better

<table>
<thead>
<tr>
<th></th>
<th>1 MAP</th>
<th>2 MAP</th>
<th>3 MAP</th>
<th>4 MAP</th>
<th>5 MAP</th>
<th>6 MAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 g/L</td>
<td>1</td>
<td>11</td>
<td>6</td>
<td>4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>1 g/L</td>
<td>5</td>
<td>68</td>
<td>45</td>
<td>41</td>
<td>23</td>
<td>36</td>
</tr>
<tr>
<td>2 g/L</td>
<td>4</td>
<td>85</td>
<td>61</td>
<td>47</td>
<td>30</td>
<td>44</td>
</tr>
<tr>
<td>4 g/L</td>
<td>7</td>
<td>116</td>
<td>112</td>
<td>82</td>
<td>61</td>
<td>76</td>
</tr>
</tbody>
</table>
Ramet production – results

![Bar chart showing the average ramet production per plant over different time periods and concentrations of a treatment. The x-axis represents time after planting (1 month, 2 months, 3 months, 4 months, 5 months, 6 months) and the y-axis represents the average ramets per plant. Different concentrations (0 g/L, 1 g/L, 2 g/L, 4 g/L) are indicated by different colors and error bars show variability. Significant differences are indicated by superscript letters (a, b, c, d).]
Ramet production – projection 0 g/L

- Original plant: $1+11+6+4+4+6 = 32$ ramets
  - Produced 1MAP: $1 \times (32) = 32$
  - Produced 2MAP: $11 \times (32) = 352$
  - Produced 3MAP: $6 \times (32) = 192$
  - Produced 4MAP: $4 \times (32) = 128$
  - Produced 5MAP: $4 \times (32) = 128$
  - Produced 6MAP: $6 \times (32) = 192$

- 1 plant $\rightarrow$ 1,024 ramets
Ramet production – projection 4 g/L

- Original plant: $7 + 116 + 112 + 82 + 61 + 76 = 454$
- Produced 1MAP: $7 \times (454) = 3,178$
- Produced 2MAP: $116 \times (454) = 52,664$
- Produced 3MAP: $112 \times (454) = 50,848$
- Produced 4MAP: $82 \times (454) = 37,228$
- Produced 5MAP: $61 \times (454) = 26,697$
- Produced 6MAP: $76 \times (454) = 34,504$
- 1 plant $\rightarrow$ 205,573 ramets

205,573 ramets from 1!
Does 1 ramet = 1 plant?

- Sprouting study
- 5 substrates (100% sand – 100% organic) all 2 g/L
- 5 depths (surface, half-buried, covered, 2 cm under, 4 cm under)
- 8 reps
- Single ramet
- Checked 3x per week for sprouting/ topping out
- 4 runs
Sprouting study – results

- Substrate: no effect
- Burial depth: big effect
Sprouting study – results

- So...
- Covered with 2+ cm: no problem!!!
- Not covered: problem :-) 
  - On surface: 51% sprout
  - Half-buried: 59% sprout
  - Barely covered: 20% sprout

- ~40% of unburied ramets will sprout...
Sprouting study – results

- Recall: 0 g/L fertilizer
  - 1 plant → 1,024 new ramets
  - 40% of 1,024 = “only” 410 plants from 1

- Recall: 4 g/L fertilizer
  - 1 plant → 205,573 new ramets
  - 40% of 205,573 = 82,229 plants from 1

82,229 plants from 1!
Ongoing research

- Burial duration
- Ramet storage conditions and duration
- Daylength