

Crested floatingheart



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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

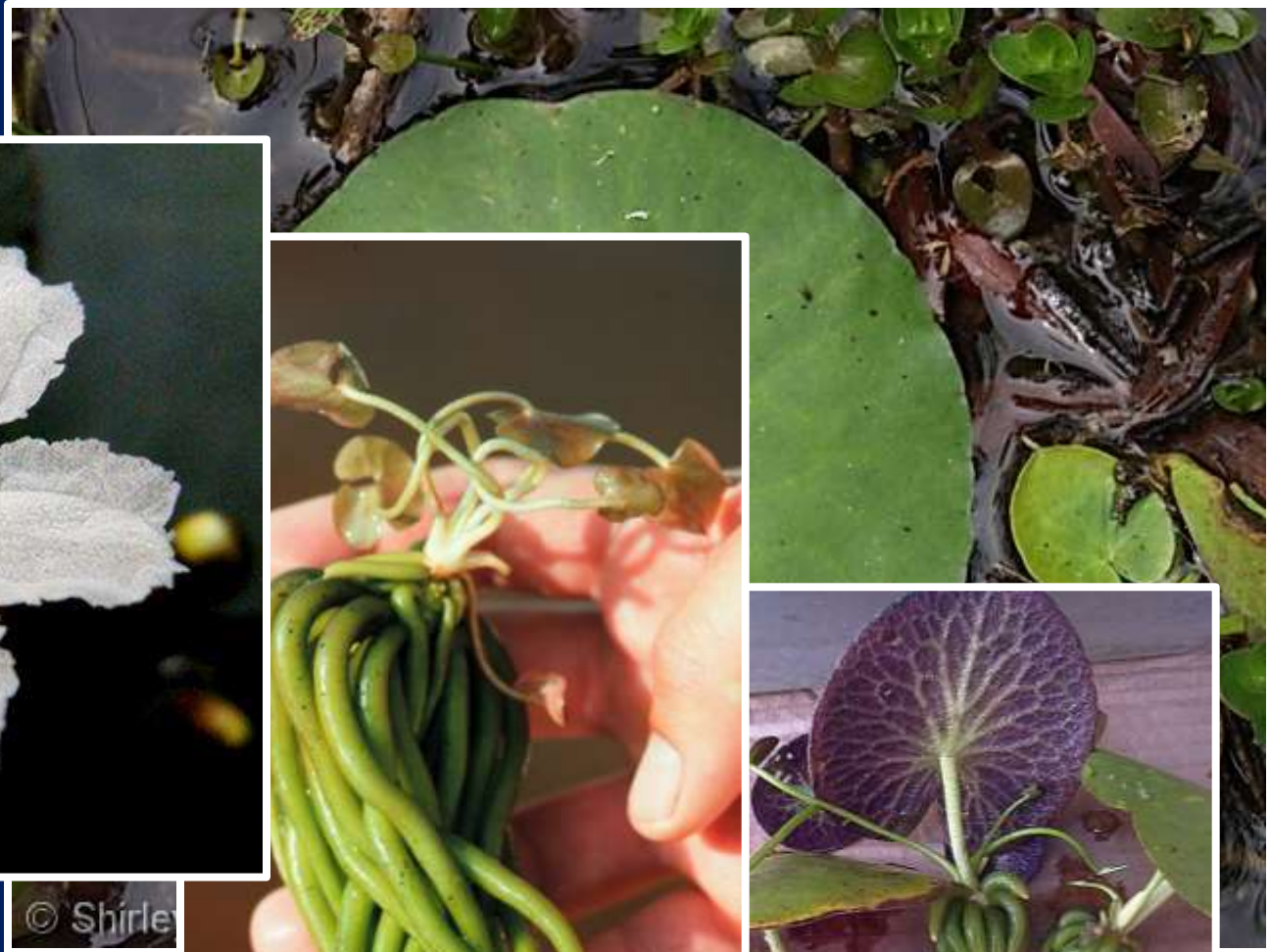


Related species in Florida: *N. aquatica*

- Bananalily



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Related species in Florida: *N. indica*

- Water snowflake



Related species in Florida: *N. peltata*

- Yellow floatingheart

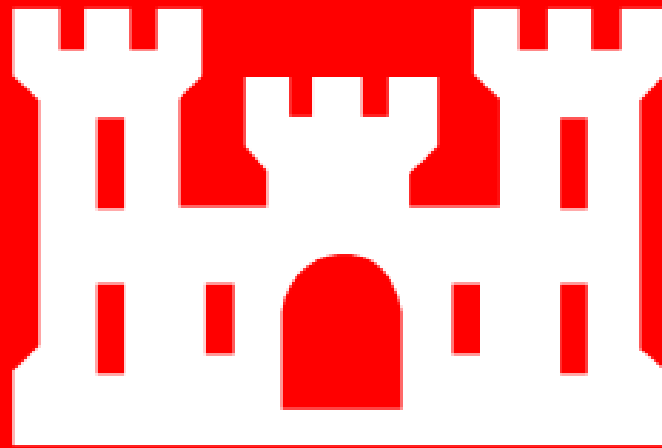


Telling them apart...



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

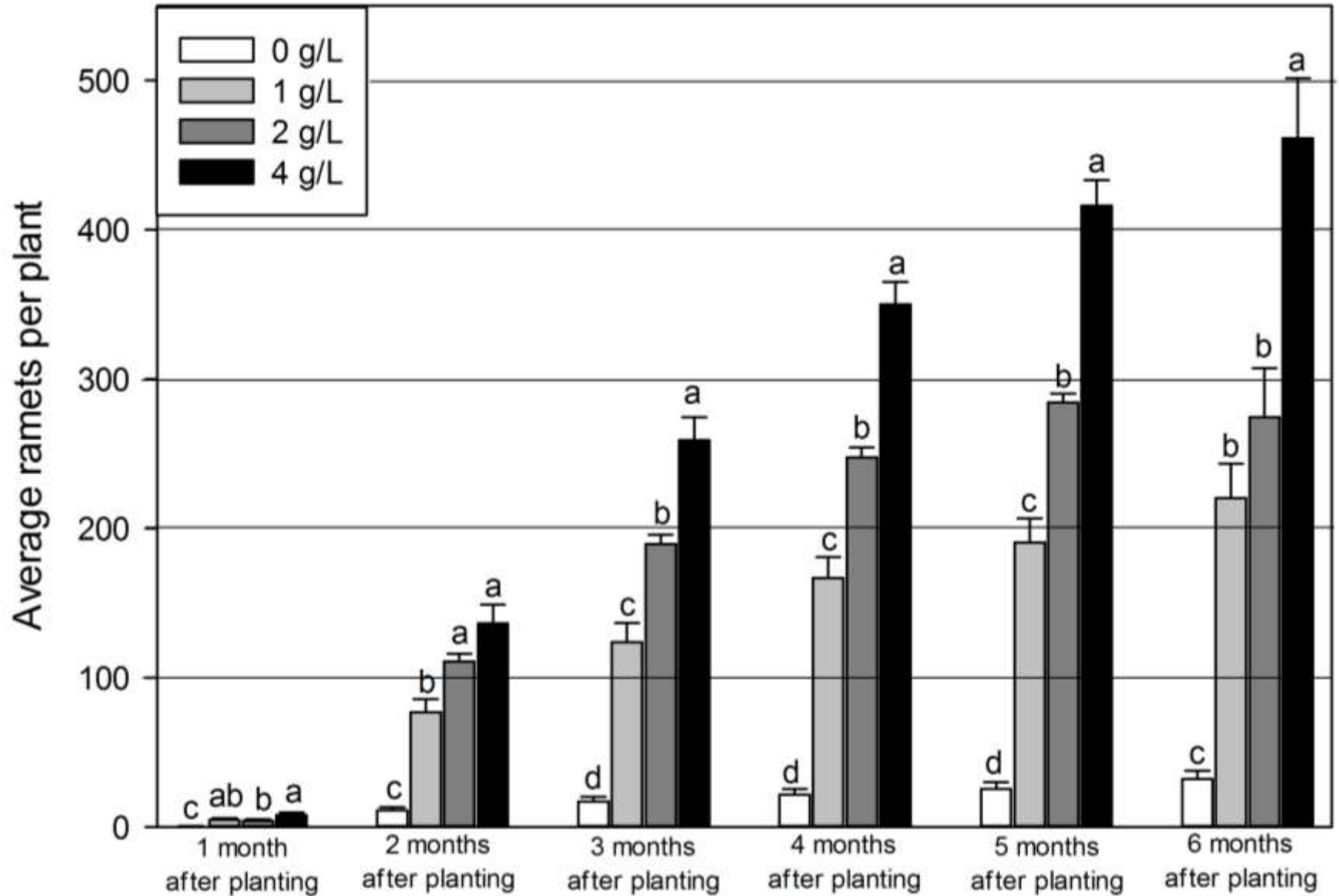
- 1 MAP: average 4 ramets/plant (~320 total)
 - All ramets removed from tanks
 - “Back to zero”
- 2 MAP: average 70 ramets/plant (~5600 total)
- 3 MAP: counting 2x per month

Ramet production – results

- Substrates: no effect
- Fertilizer: mo' better

	1 MAP	2 MAP	3 MAP	4 MAP	5 MAP	6 MAP
0 g/L	1	11	6	4	4	6
1 g/L	5	68	45	41	23	36
2 g/L	4	85	61	47	30	44
4 g/L	7	116	112	82	61	76

Ramet production – results



Ramet production – projection 0 g/L

- Original plant: $1+11+6+4+4+6 = 32$
 - Produced 1MAP: $1*(32)= 32$
 - Produced 2MAP: $11*(32)= 352$
 - Produced 3MAP: $6*(32)= 192$
 - Produced 4MAP: $4*(32)= 128$
 - Produced 5MAP: $4*(32)= 128$
 - Produced 6MAP: $6*(32)= 192$
- 1 plant \rightarrow 1,024 ramets

Ramet production – projection 4 g/L

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

205,573 ramets from 1!

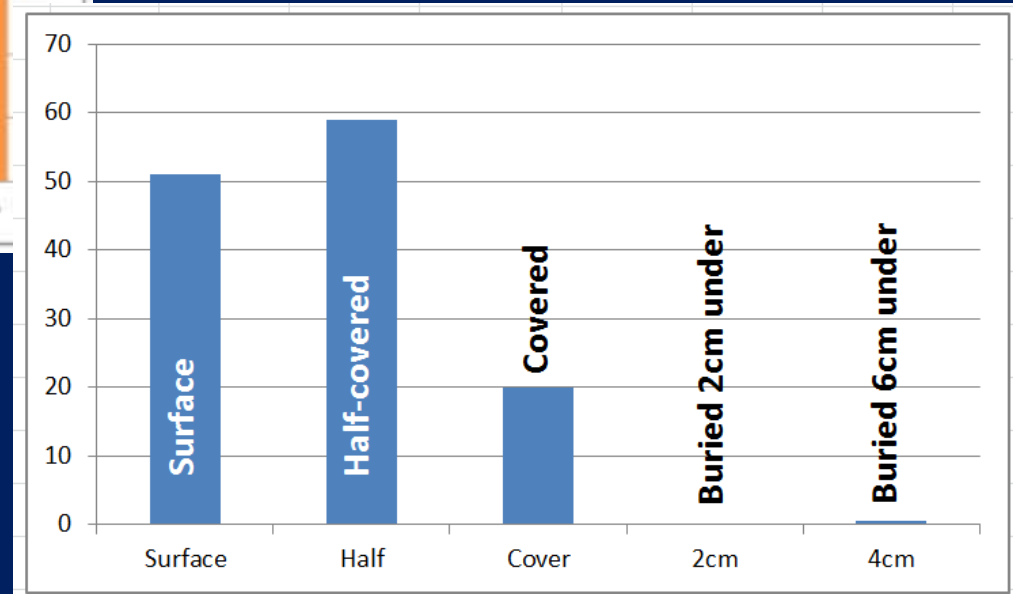
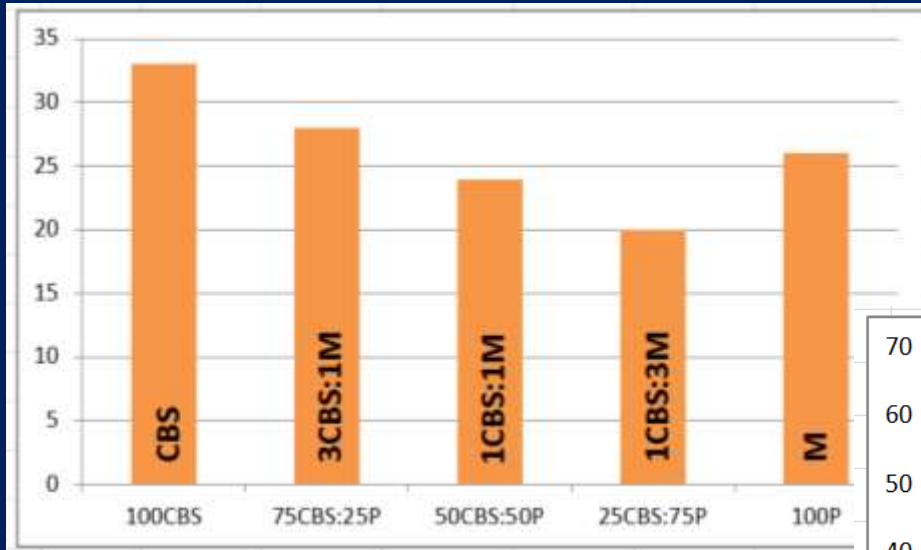
Does 1 ramet = 1 plant?

- 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

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 uncovered ramets will sprout...

Sprouting study – results

- Recall: 0 g/L fertilizer
 - 1 plant → 1,024 ramets
 - 40% of 1,024 = “only” 410 plants from 1
- Recall: 4 g/L fertilizer
 - 1 plant → 205,573 ramets
 - 40% of 205,573 = 82,229 plants from 1

82,229 plants from 1 !

Yikes... now what?!?!?

- Control methods
- Prevention
- EDRR
- Cultural: cover 'em up???
- Mechanical: too fragile
- Chemical... previous research

Puri & Haller submersed trials (2010)

- < 50% reduction
 - Triclopyr 2.5 ppm
 - Endothall 250 ppb
- < 80% reduction
 - Imazamox or flumioxazin 400 ppb
 - Endothall 500 ppb
- > 90% reduction
 - Topramezone 200 ppb
 - Endothall 1.5 or 2.5 ppm

Willey submersed & foliar trials (2012)

- Submersed
 - Diquat
 - Amine salt of endothall
- Foliar
 - Imazamox
 - Imazapyr
- Interesting foliar:
 - Penoxsulam: no DW reduction; major root damage

Field trials with SFWMD

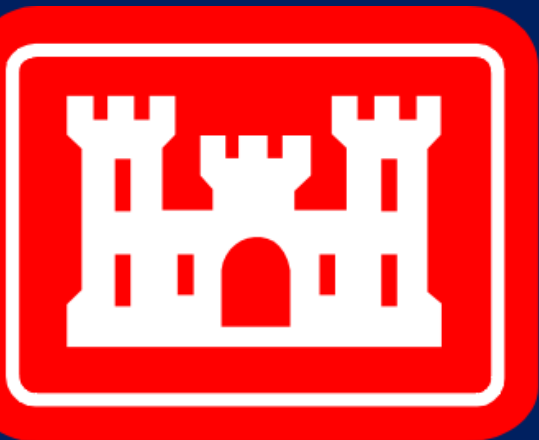
Herbicide 1	Rate	Herbicide 2	Rate	How
Imazamox	64 oz/ac	None	n/a	F
Imazapyr	96 oz/ac	None	n/a	F
Penoxsulam	5.6 oz/ac	Imazamox	64 oz/ac	F
Penoxsulam	5.6 oz/ac	Imazapyr	96 oz/ac	F
Diquat	0.37 ppm	None	n/a	S
Endothall (H191)	2.5 ppm	None	n/a	S
Topramezone	200 ppb	None	n/a	S
Modified bump treatment – penoxsulam f/b other 1 MAT				
Penoxsulam	5.6 oz/ac	*f/b* imazamox	64 oz/ac	F
Penoxsulam	5.6 oz/ac	*f/b* imazapyr	96 oz/ac	F

Stay tuned...

Thanks! Questions? ssardes@ufl.edu ,
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