Importance of Sequence: Does the order of management strategy improve cattail control while rehabilitating impacted ridges and sloughs?

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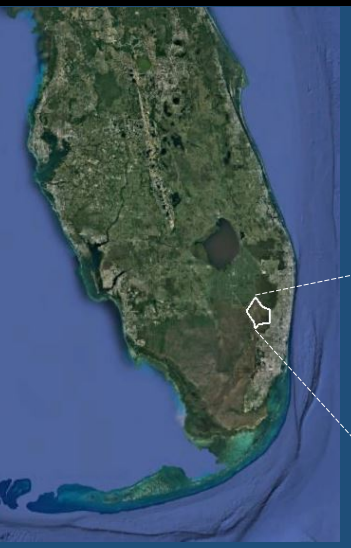
Active Marsh Improvement 3 (AMI 3) - Hypothesis

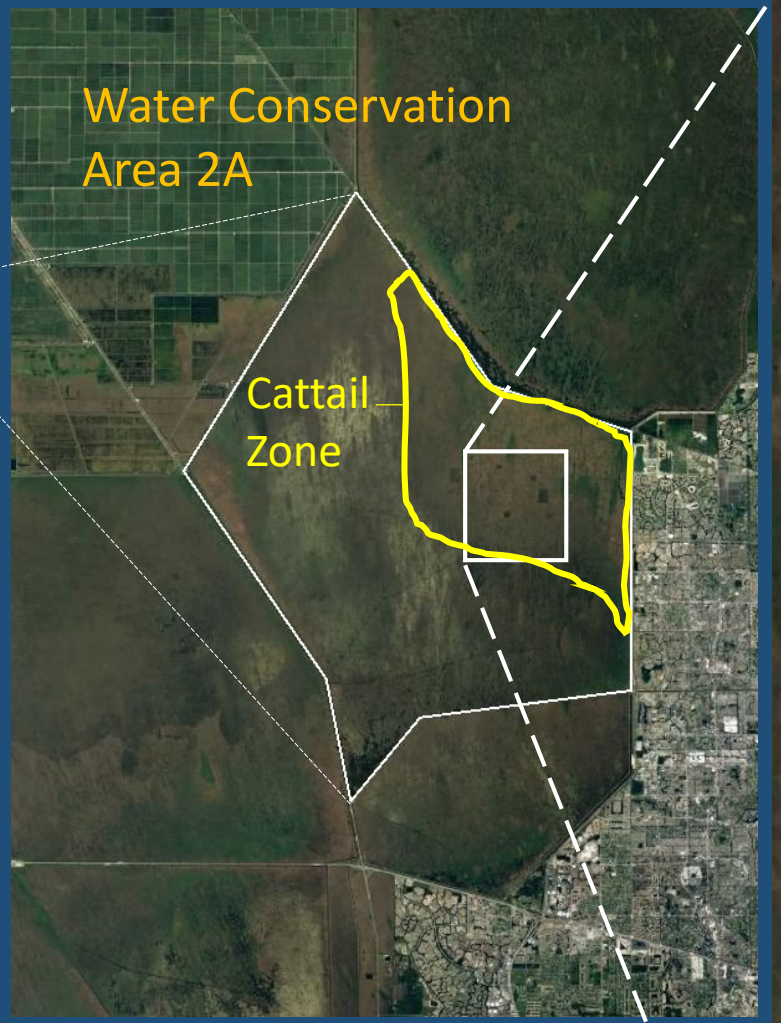
Purpose

- accelerate recovery of ridge/slough landscape
- get better efficacy in cattail control

?

Hypothesis - By burning off thatch first, we will provide better herbicide coverage to live cattail and thus obtain better control than our herbicide then burn strategy.





AMI 3 Study Area

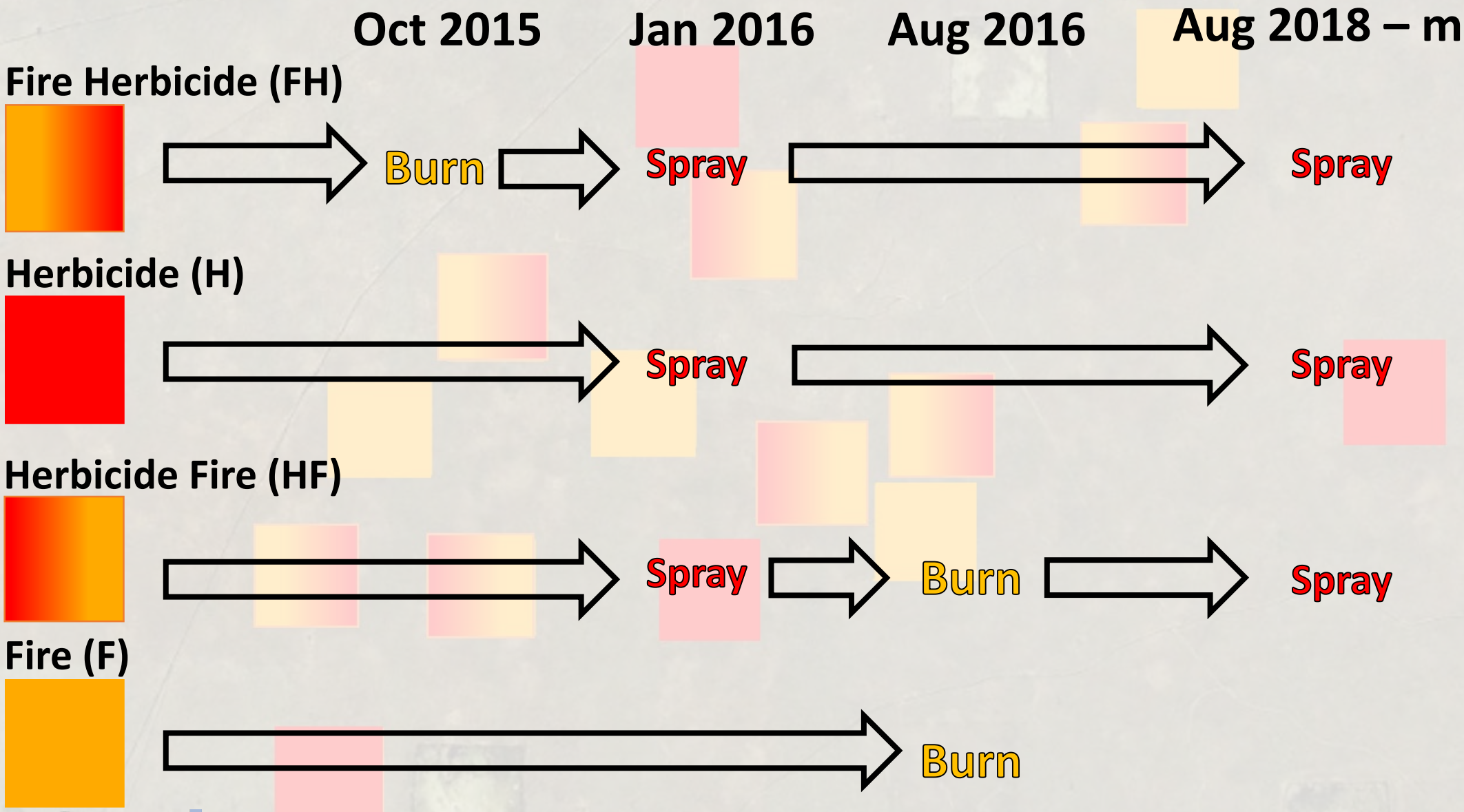
N

250 m

- Herbicide (H)
- Fire (F)
- Herbicide Fire (HF)
- Fire Herbicide (FH)

2016 satellite imagery

AMI 3 Experimental design and Methods



Methods

Cattail control – imazamox herbicide

1. selective towards cattail
2. Rodgers and Black 2011
3. non-target species affected but recover

Assess Cattail control and desirable vegetation

1. After one and two growing seasons
2. 2x2 meter nested quadrat at random points
3. Frequency and live canopy % cover
4. Fisher's exact test – differences among treatments

Results - 1st Season responses

Results

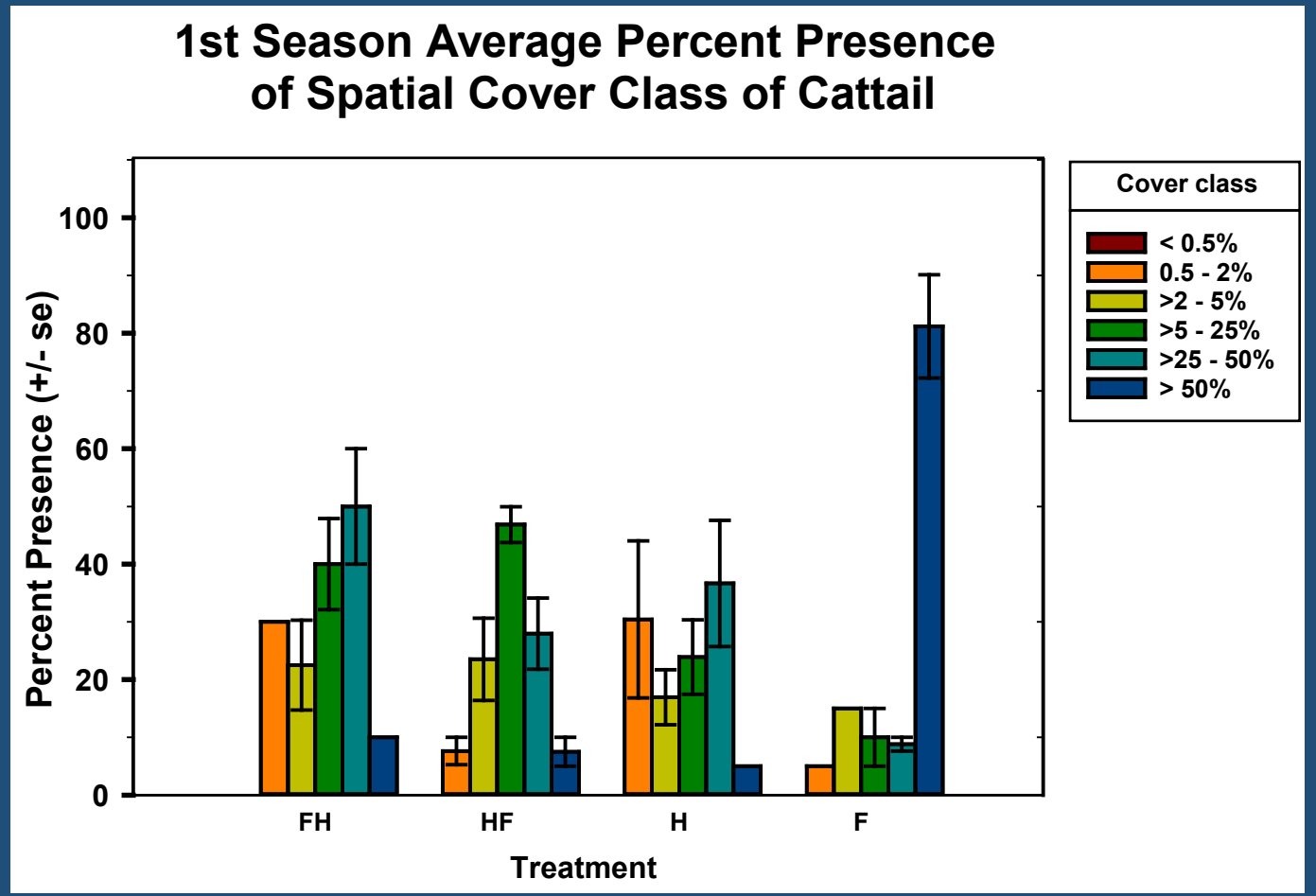
1st Season responses

- Fire plots – filled in within 3 months, highest density of plants
- Herbicide plots - significant thatch remaining

Results

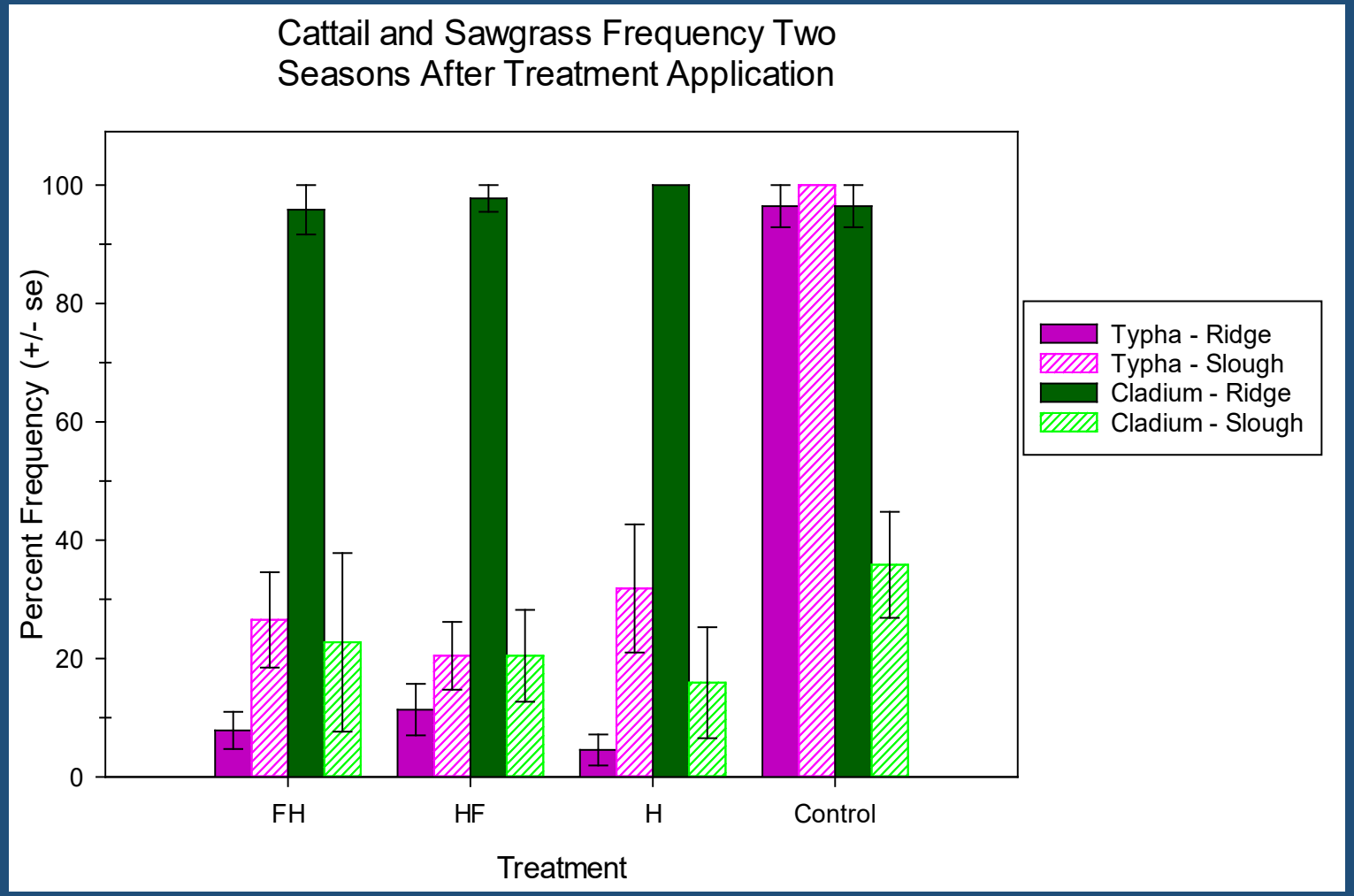
1st Season responses - 2017

- Submerged aquatic vegetation (SAV) - present within FH and HF treatments
- Cattail frequency -100% presence among treatments - no diff HF and FH



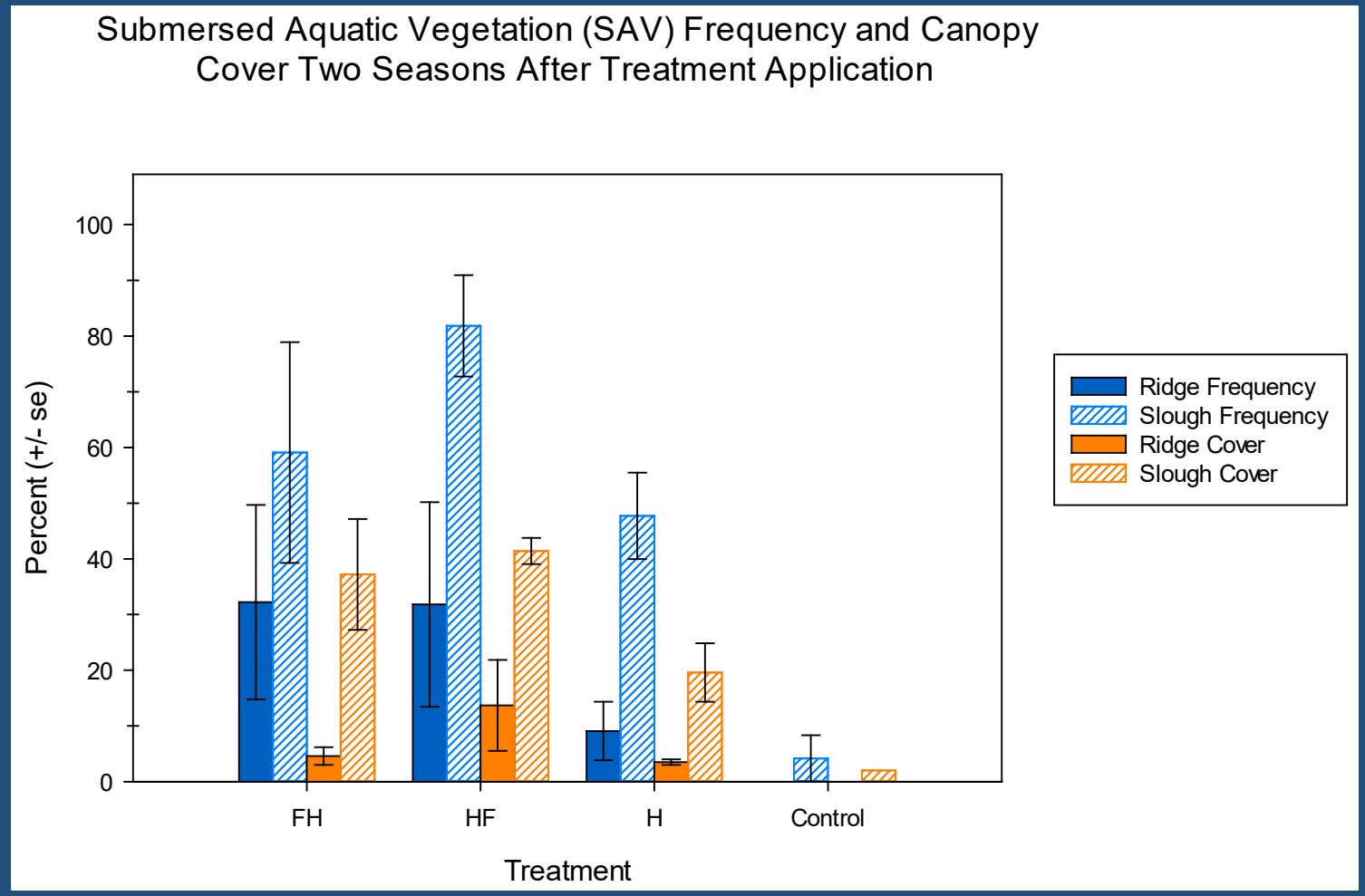
Results - 2nd season responses - 2019

- Cattail presence significantly reduced with any treatment strategy
- No significance in cattail reduction between treatments
- No reduction in Ridge Sawgrass presence



Results - 2nd season responses – SAV

- SAV significantly increased presence with all treatment strategies
- Fire then Herbicide not significantly better from Herbicide then Fire
- Herbicide then Fire only significant from Herbicide only treatment - ??



Herbicide Fire

Fire Herbicide

Conclusions

- Original hypothesis: Burning then spraying strategy will provide better herbicide coverage and thus obtain better cattail control than a herbicide then burn strategy.
    - Cattail control is similar
    - Sawgrass similarly affected
    - SAV – use of fire with herbicide promotes SAV more readily than herbicide alone.

Future

- What is an acceptable cattail % to target
- Effective cattail maintenance interval

Acknowledgements

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