

How horn flies could be affecting your beef herd's reproductive success?

Amanda Warner¹, Nancy Hinkle², Bradley Heins³, Dean Pringle⁴, Samuel Aggrey⁵, and Romdhane Rekaya¹

¹Department of Animal Science; University of Georgia

²Department of Entomology; University of Georgia

³College of Veterinary Medicine; University of Georgia

⁴Institute of Food and Agricultural Sciences; University of Florida

⁵Department of Poultry Science; University of Georgia



UNIVERSITY OF
GEORGIA

Introduction

- Horn Fly
 - Obligate Blood Feeder
 - 20-38 blood meals per day
 - 1.5 mg
- Large Geographical Range
- Most prevalent ectoparasite on pastured cattle
- Current Methods of Control



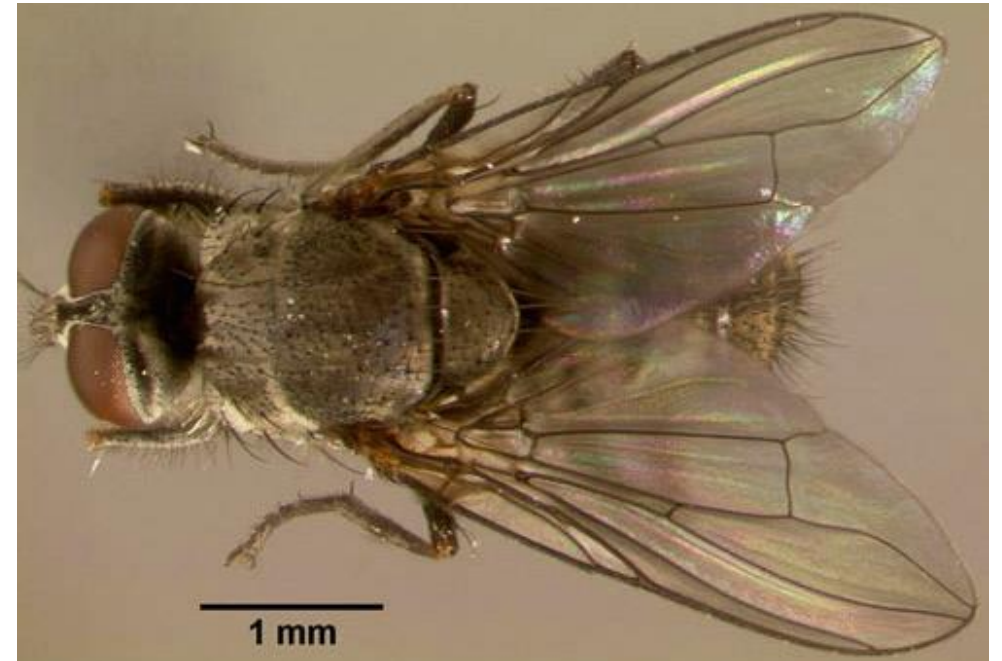
Over a billion dollars

of economic loss in the
United States annually



Introduction – Impact on Cattle

- Stress
 - Increased heart and respiratory rates
- Infection
 - Skin
 - Mastitis
- Production
 - Growth Rate reduced by up to 0.5 lbs per day
 - Reduced Grazing Time
 - Weaning weights
 - Milk production



Reproduction

- Reproduction can be impacted by...
 - Stress (Lucy, 2019)
 - BCS (Pryce, Coffey, and Simm, 2001)
- Lower reproduction due to disease (American Cattleman, 2023)
- Similar Pregnancy Rates between control and treatment (DeRouen et al., 2003)



Objectives

To assess the impact of horn flies on the reproductive performance of beef cattle heifers and
COWS

Success of first
insemination

Calving success after two
inseminations

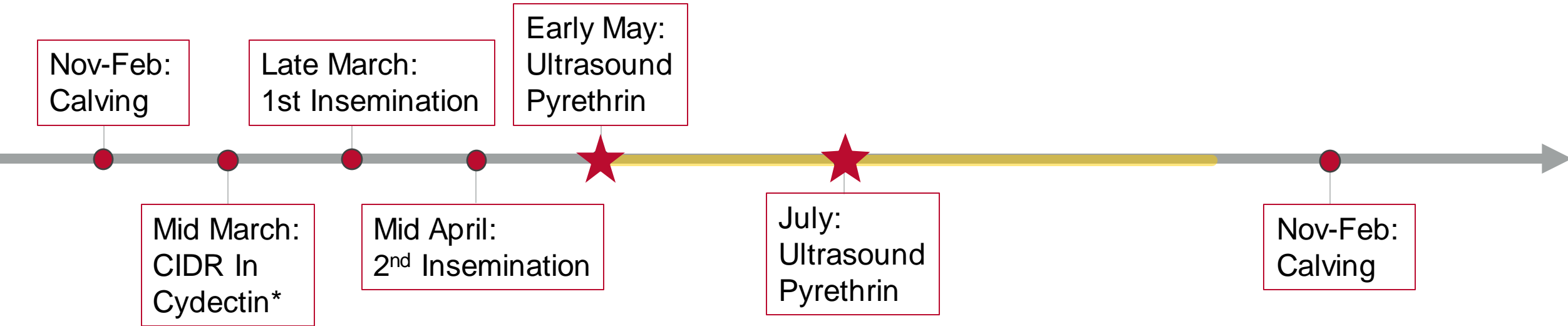


Data Collection

- Historic Insemination and calving data (2015 – 2022)
 - Northwest Georgia Research and Education Center
 - 2088 records on 821 animals
- 2 insemination events and calving
 - All animals were placed on timed ai protocol prior to first insemination
 - Outcomes recorded as binary trait
 - Still births recorded as success
- 2019 and 2022 (No Fly Control was used)
 - Images at 2 time points were used to estimate fly abundance
- 2015-2018 and 2020-2021 (Pyrethrin Spray)
 - Not evaluated for fly abundance



Horn fly treatment timeline



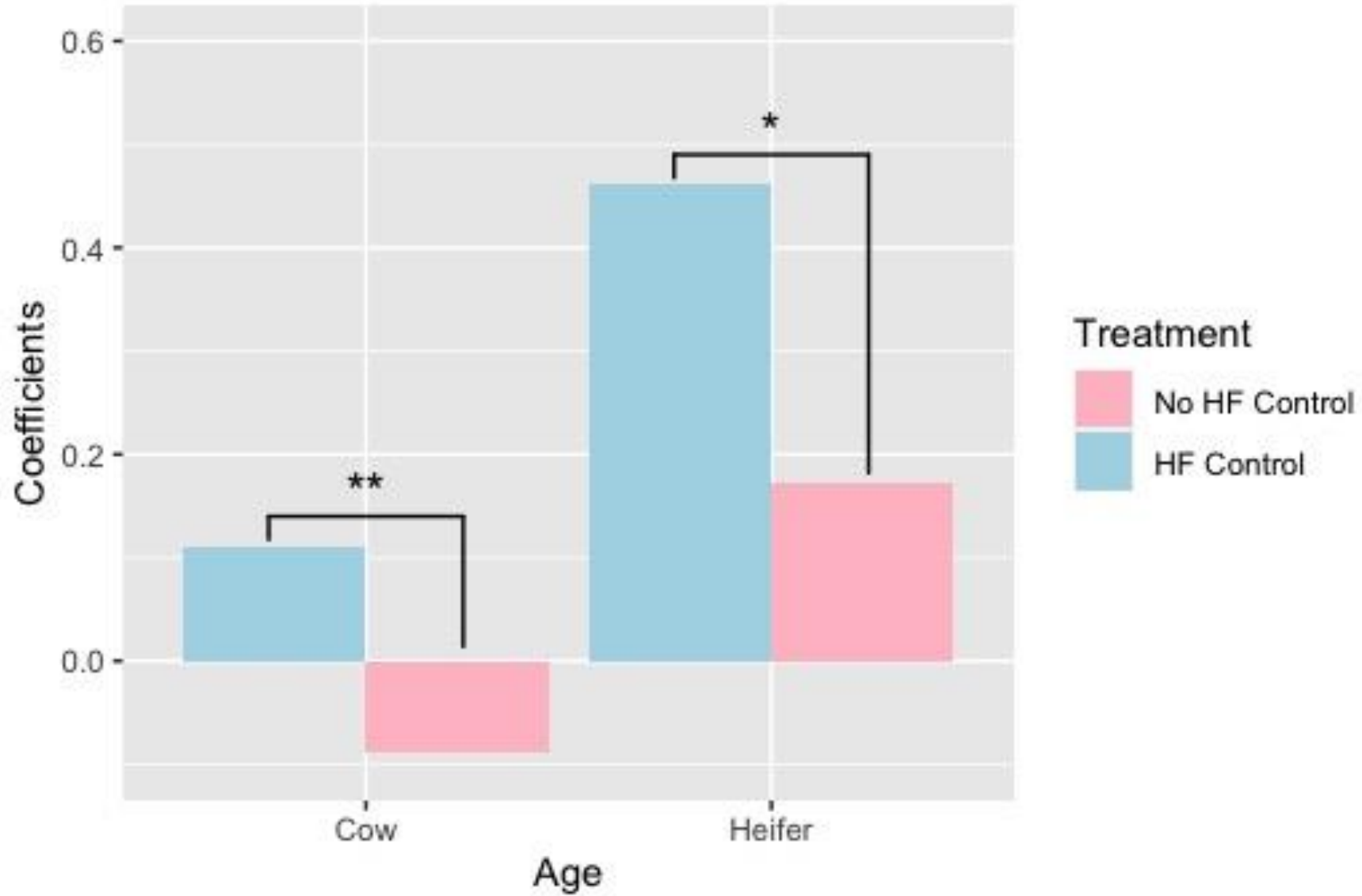
Results

	Years with Horn Fly Control			Years without Horn Fly Control		
	1 st Breeding Attempt	2 nd Breeding Attempt	Calving	1 st Breeding Attempt	2 nd Breeding Attempt	Calving
Total # of Animals	1536	753	1530	533	275	524
# of Successes	827	517	1297	259	191	426
Success Rate	0.538	0.703	0.848	0.486	0.695	0.814

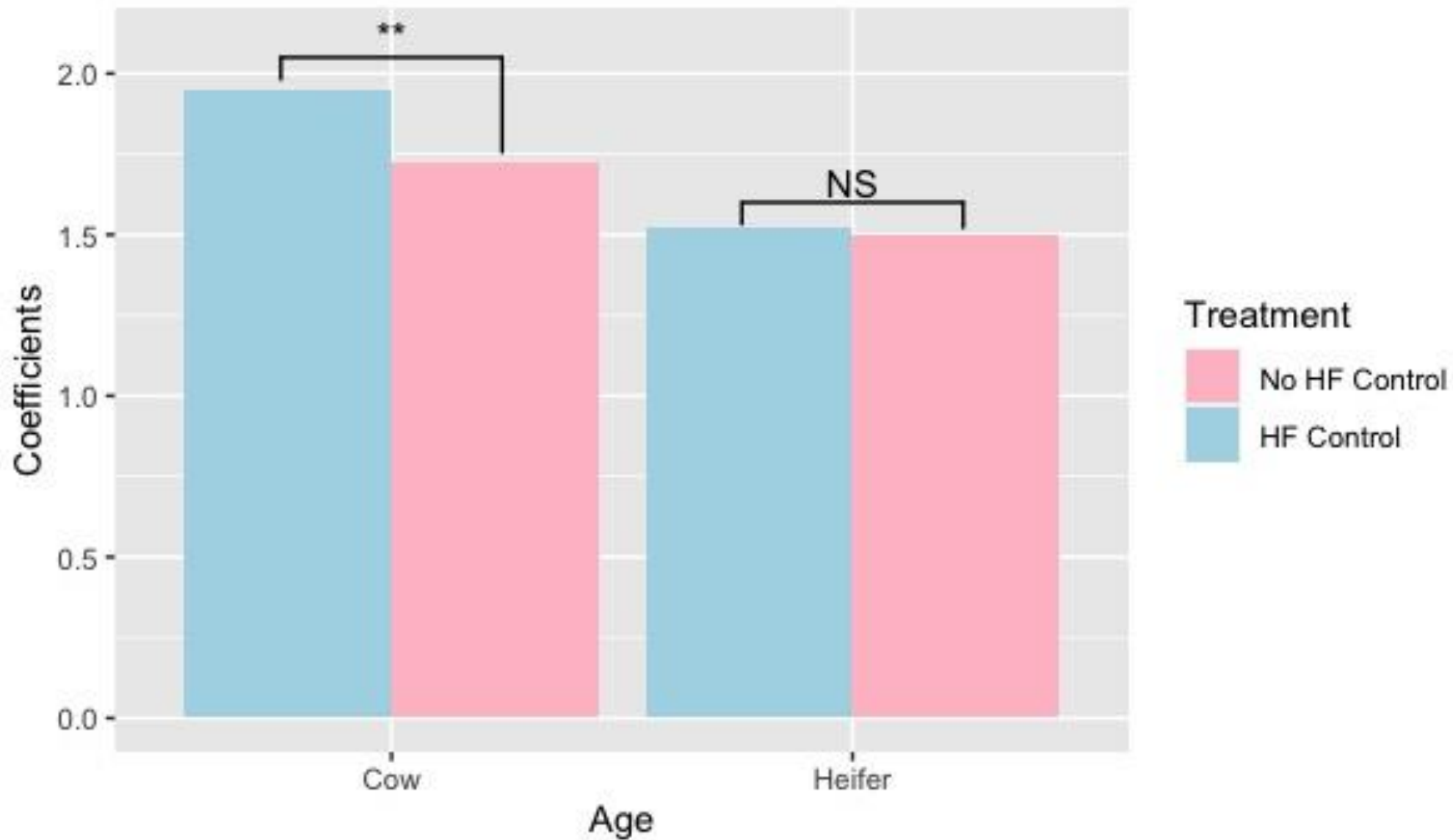
Results- AI and NS

	Years with Horn Fly Control		Years without Horn Fly Control	
	Artificial Insemination	Natural Service	Artificial Insemination	Natural Service
Total # of Animals	1778	467	580	227
# of Successes	975	361	295	155
Success Rate	0.55	0.773	0.509	0.683

1st Insemination Event



Calving Success



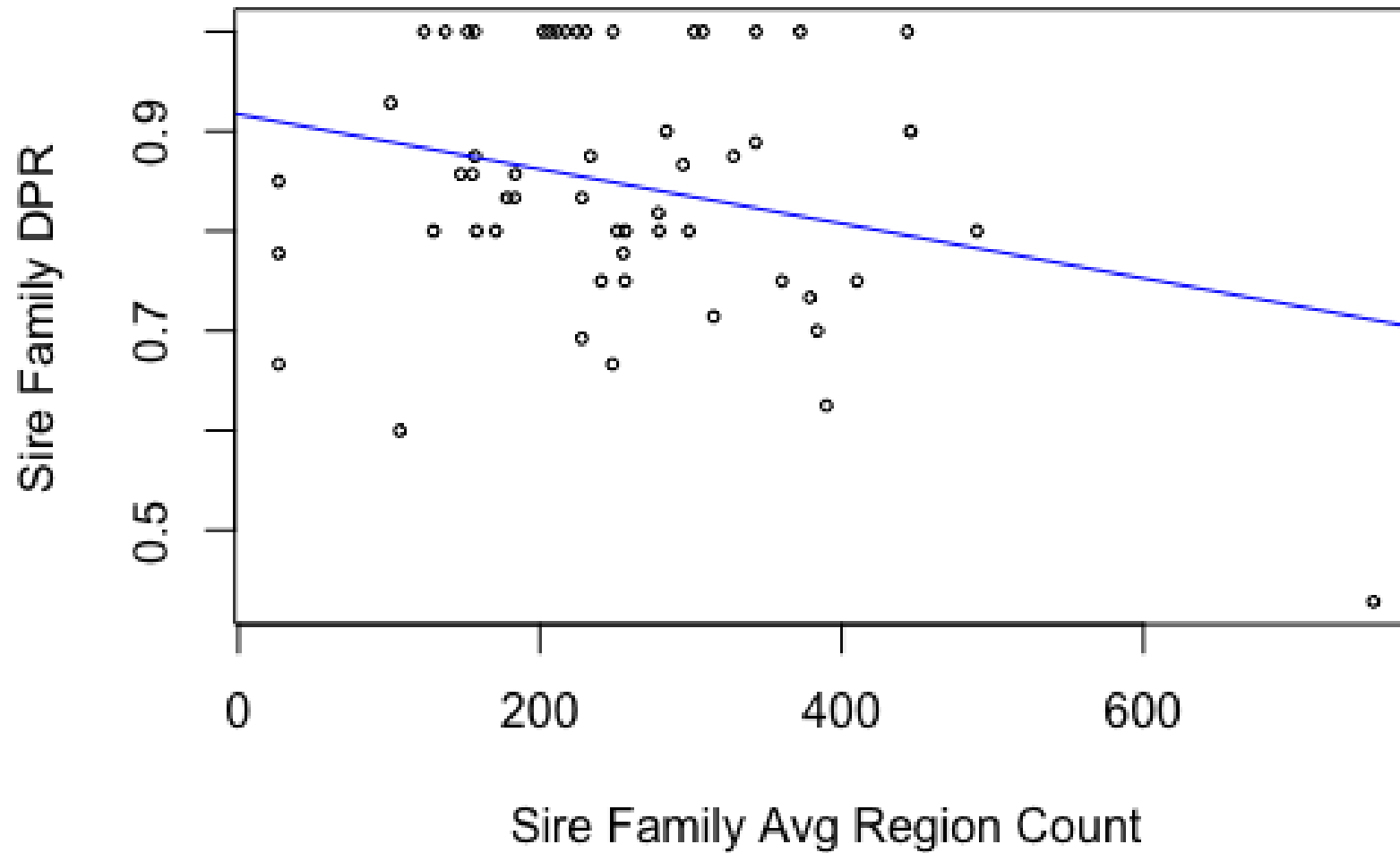
Results – Fly Count Classes

2019 Conception and Calving Rates						
	Horn fly Control			No Horn Fly Control		
	1 st Breeding Event	2 nd Breeding Event	Calving	1 st Breeding Event	2 nd Breeding Event	Calving
Low	0.571	0.939	0.952	0.453	0.841	0.751
Med	0.597	0.934	0.941	0.485	0.871	0.806
High	0.612	0.953	0.961	0.55	0.869	0.844
All	0.596	0.942	0.952	0.496	0.86	0.801

Results – Fly Count Classes

2022 Conception and Calving Rates						
	Horn Fly Control			No Horn Fly Control		
	1 st Breeding Event	2 nd Breeding Event	Calving	1 st Breeding Event	2 nd Breeding Event	Calving
Low	0.63	0.988	0.993	0.588	0.946	0.886
Med	0.614	0.982	0.994	0.542	0.934	0.886
High	0.612	0.988	0.989	0.502	0.9	0.833
All	0.619	0.986	0.992	0.544	0.927	0.868

Effect of HF abundance on daughter pregnancy rate among sire families



Conclusions

- Use of Horn Fly Control shows potential improvement on
 - Success of 1st breeding
 - Overall Calving Rates
 - Conception rates associate with AI and NS
- Every fly abundance class shows higher conception and calving rates when treated for horn flies
 - High horn fly count does not always indicate lower success rates
- Lower horn fly counts correlated with high daughter pregnancy rates
- Injury Thresholds should be evaluated on an individual basis to determine onset of decay of reproductive performance
- Further research should be conducted on possible reproductive impacts

Thank you!

