

# BIO-PESTICIDE RESEARCH 2018

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# IPM and Research

- Holistic research on IPM is difficult
- Too many moving parts to determine influences in data
- Specific Research Trial Examples:
  - Impact of beetle banks
  - Mulch use to reduce weed pressure
  - Released predator species to control aphid populations
  - Effect of pesticides

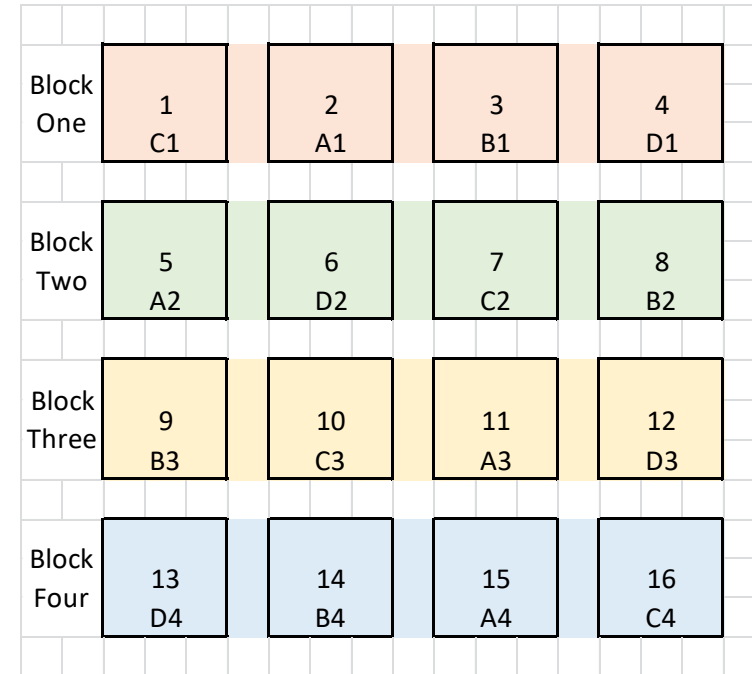



# Evaluating the Efficacy of Organic Pesticides

- Research study launched in January 2018 at Lomax Farm
- How did we come up with the idea?
  - Format
  - Materials
  - Procedure
- What did we test?
  - Herbicides, Fungicides, Insecticides

# Herbicide

- Surrogate Weed
  - Grain Amaranth
  - Japanese Millet
- Three Herbicides
  - All Down
  - Avenger
  - Ecoblend
- Sprayed per label instructions for 4 weeks
- Weed counts, leaf area, and dry weight

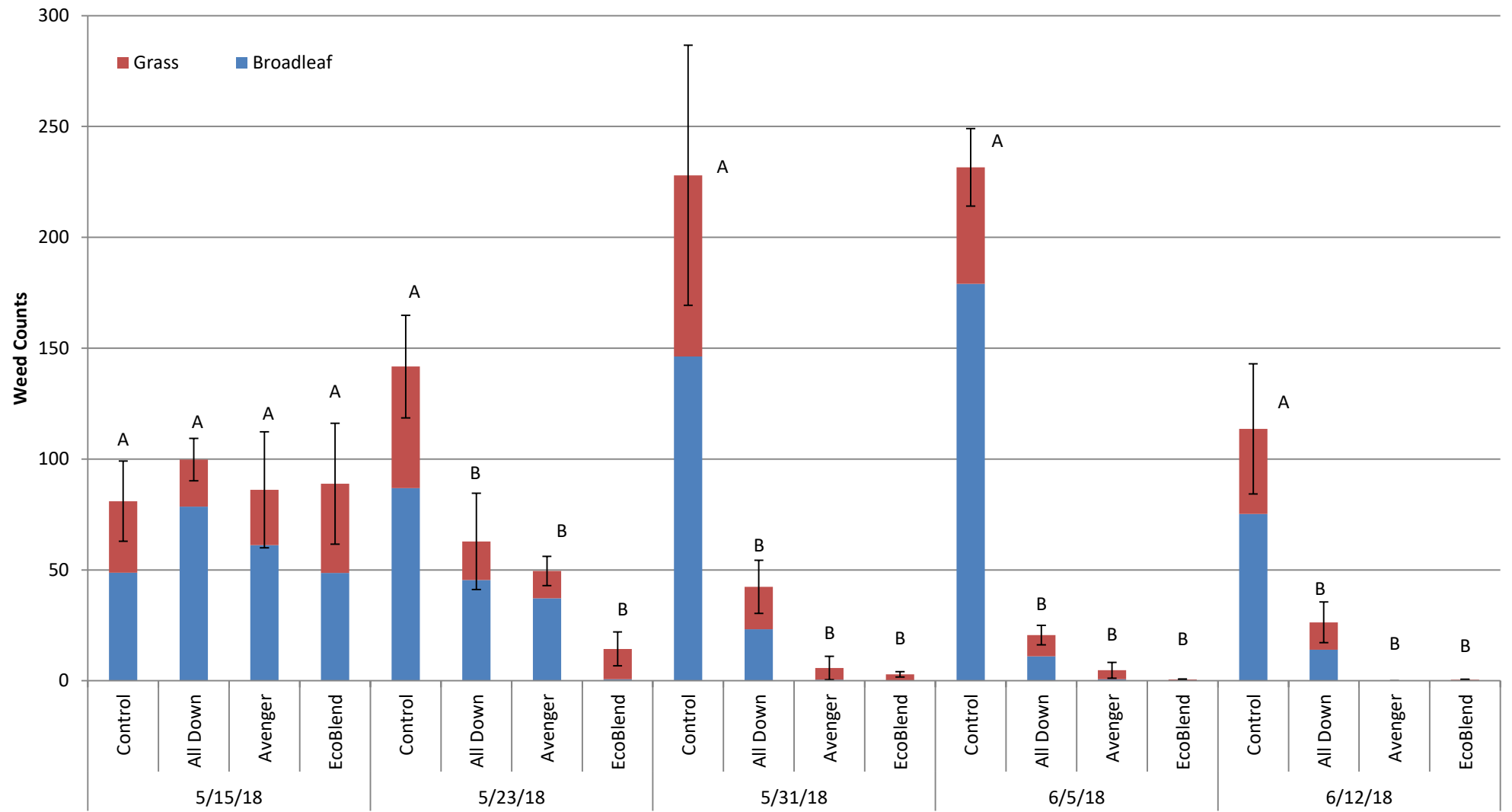


Treatments:	
A	Control
B	acetic and citric acid (All Down®, Summerset, Chaska, MN)
C	d-limonene oil (Avenger, Cutting Edge Formulations, Buford, GA)
D	vegetable oil (EcoBlend®, HOMS Back to Nature, Pittsboro, NC)
1m	
	1m

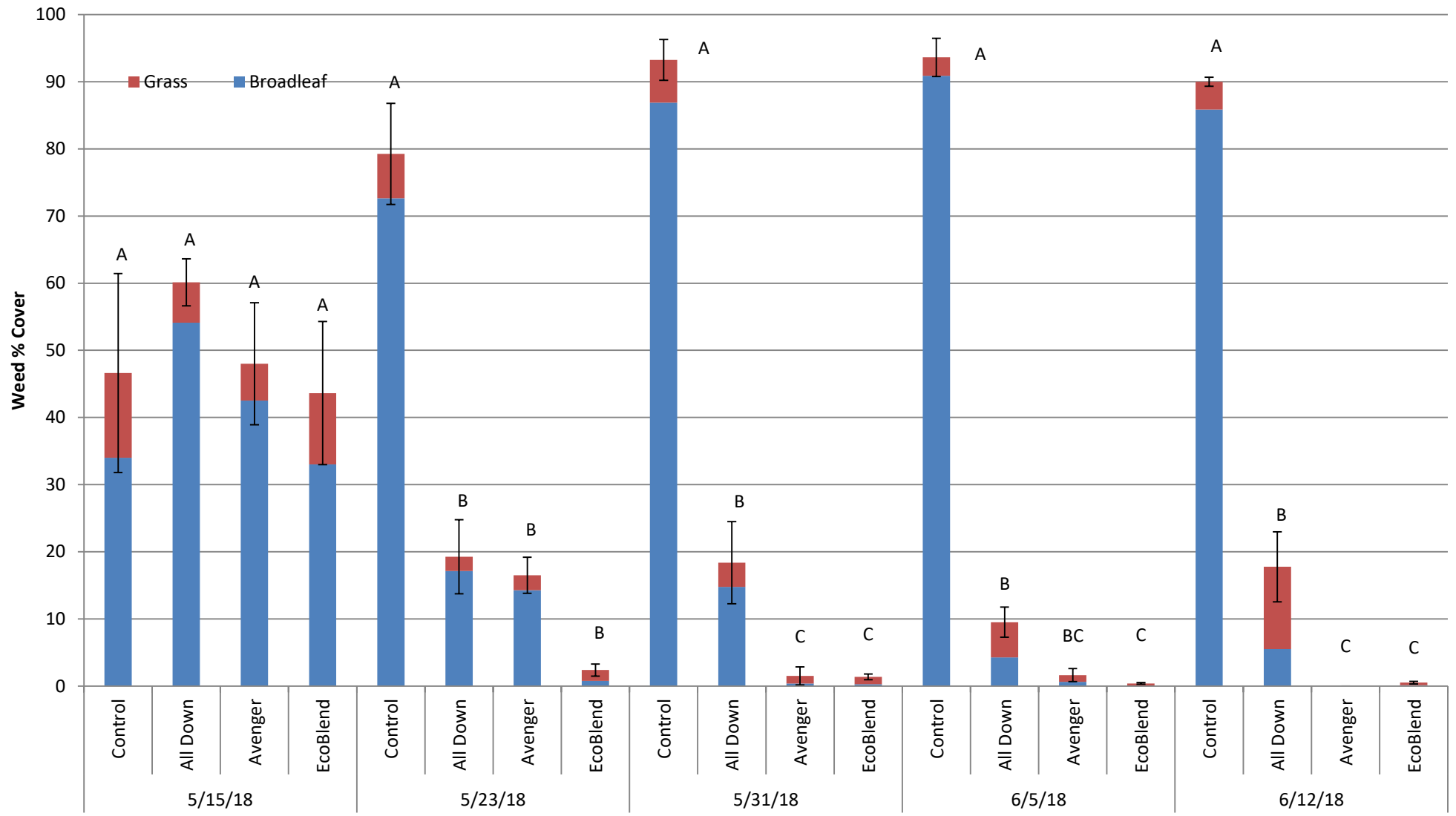






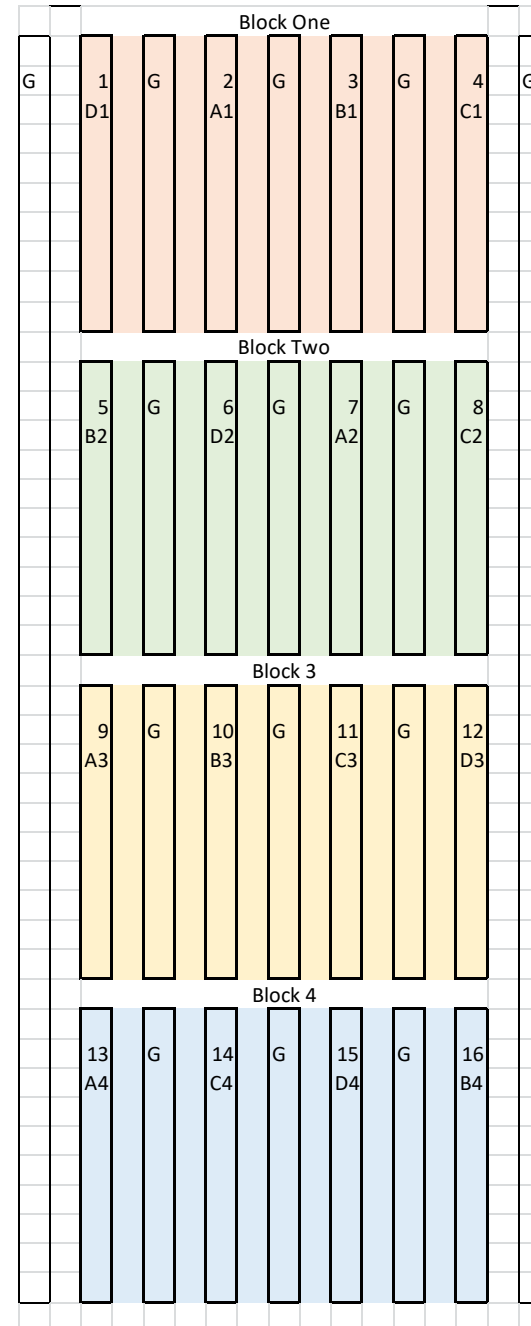






# Fungicide

- Dunja Zuccinni
- Fungicides
  - Champ WG (Copper Hydroxide)
  - Stargus (Bacillus amyloliquefaciens strain F727\*)
  - Lifeguard (Bacillus mycoides isolate J\*)
- Sprayed per label instructions for 5 weeks ~ after threshold was met
- Harvest, Horsfall-Barret Disease Rating

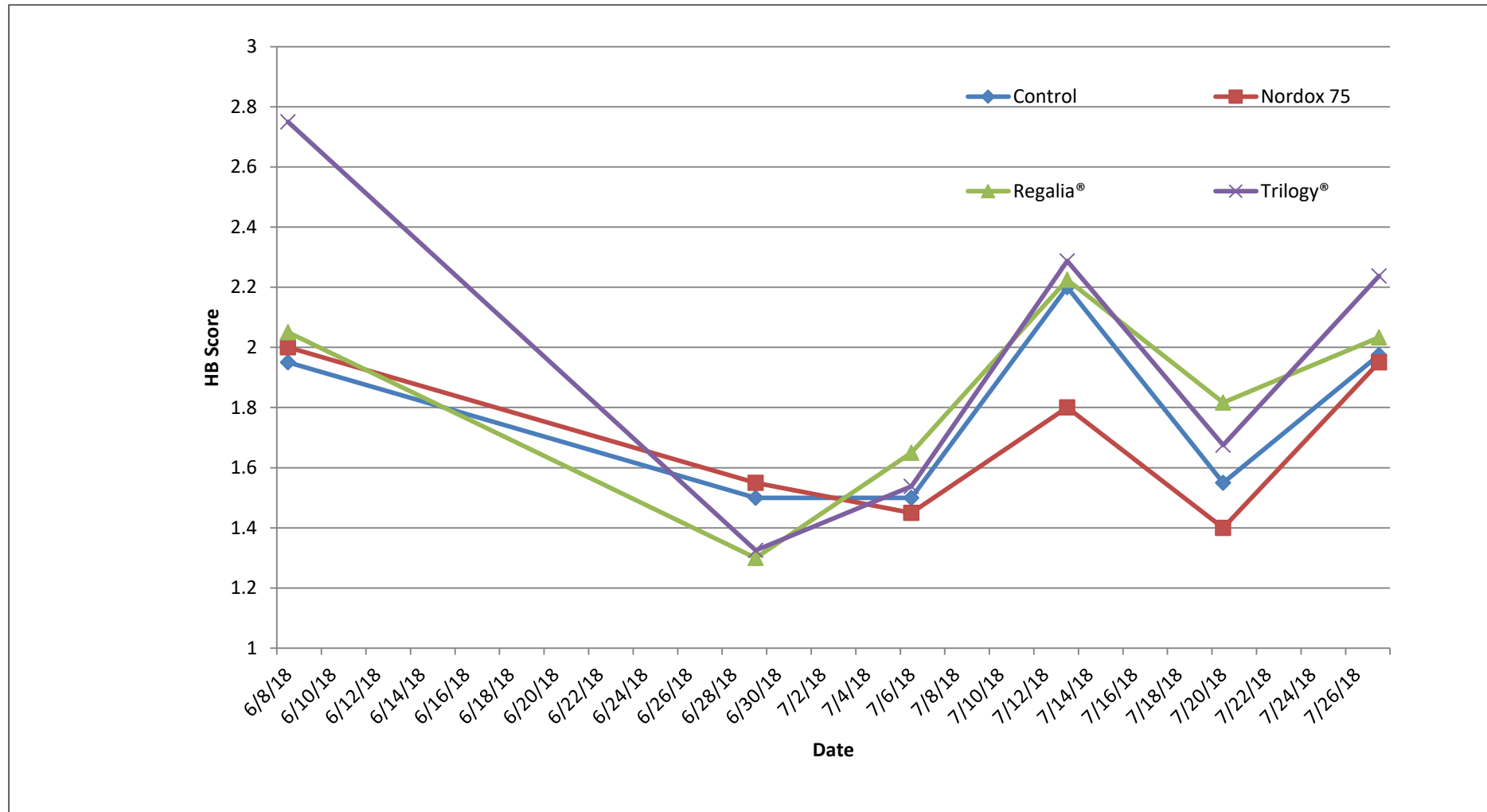


Treatments	
A	Control
B	(Champ WG, Nufarm Americas Inc., Alsip, IL)
C	(Stargus®, Marrone Bio Innovations, Davis, CA)
D	(Lifeguard®, Certis USA LLC, Columbia, MD)
	.75m
	.75m

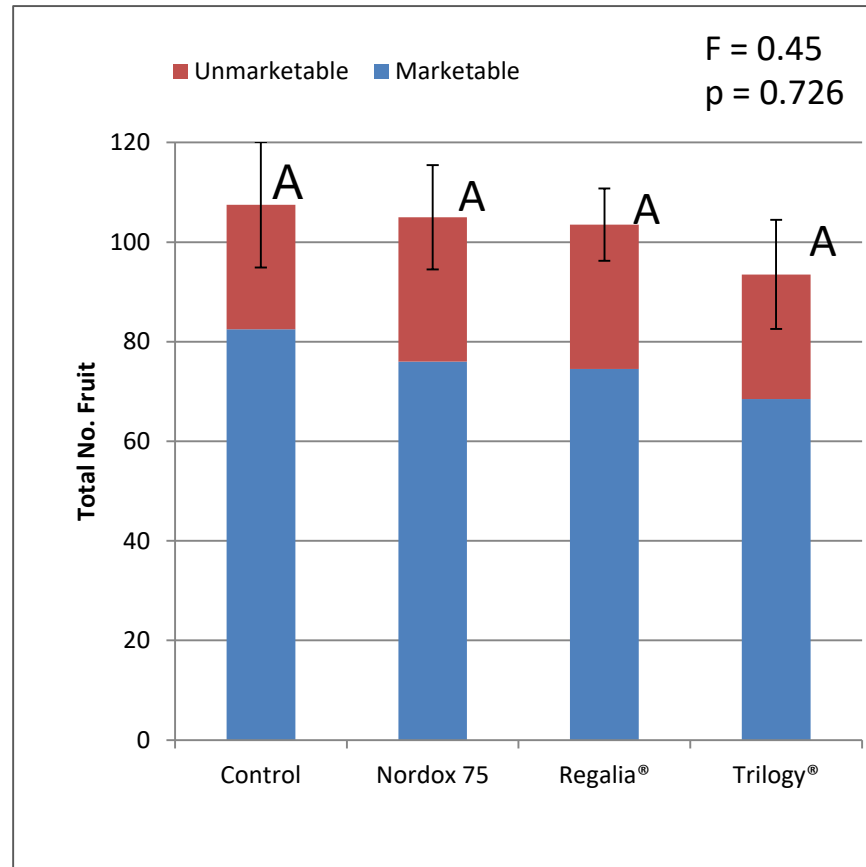




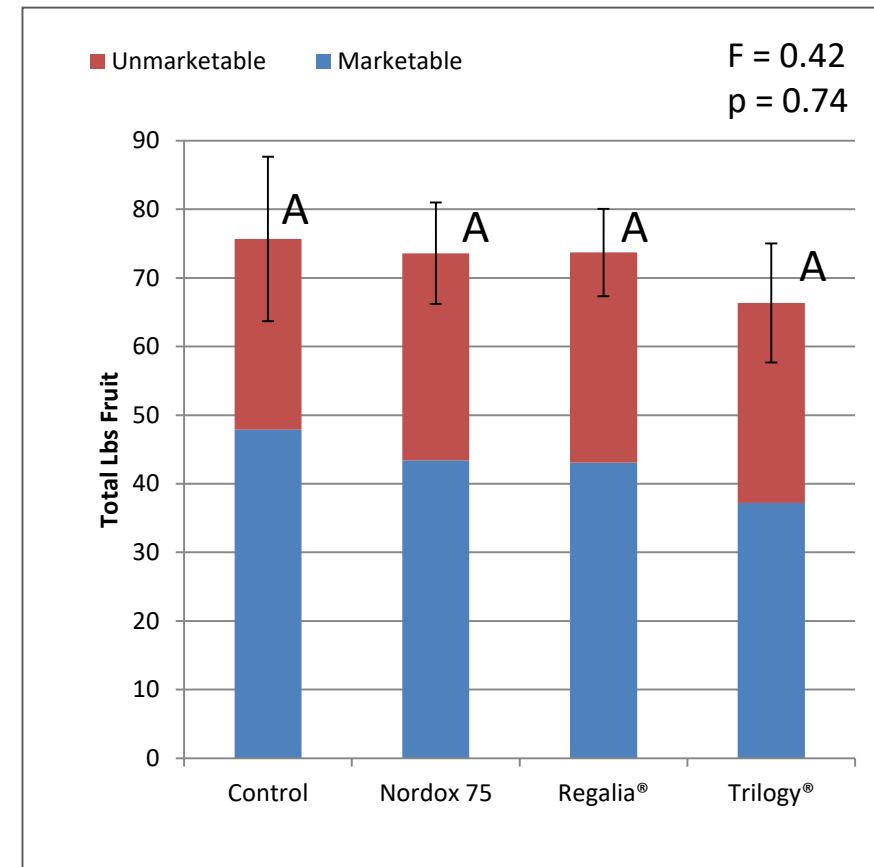
# Horsfall\_Barrest Comparison



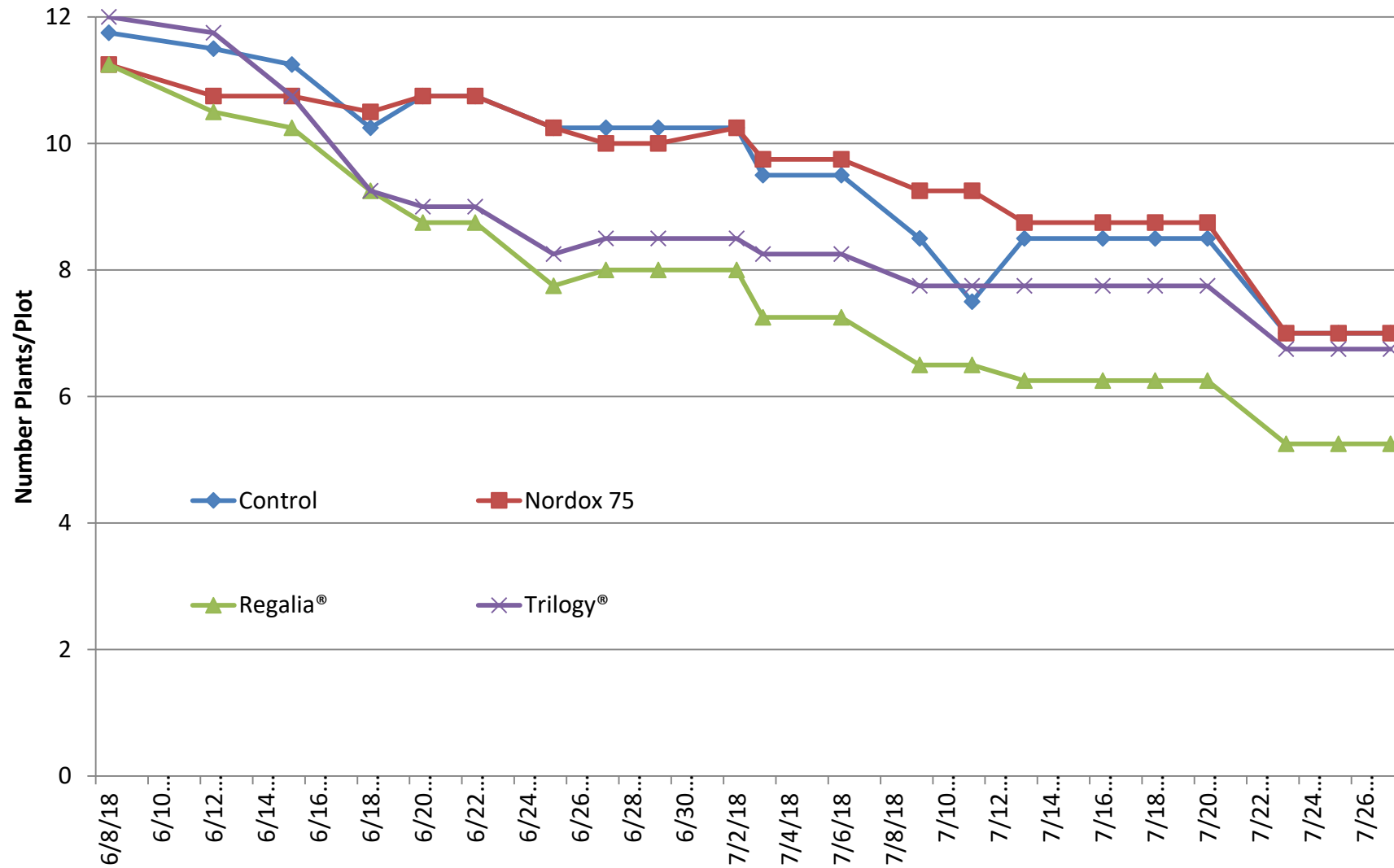
## Harvest by Number of Fruit



## Harvest in Pounds

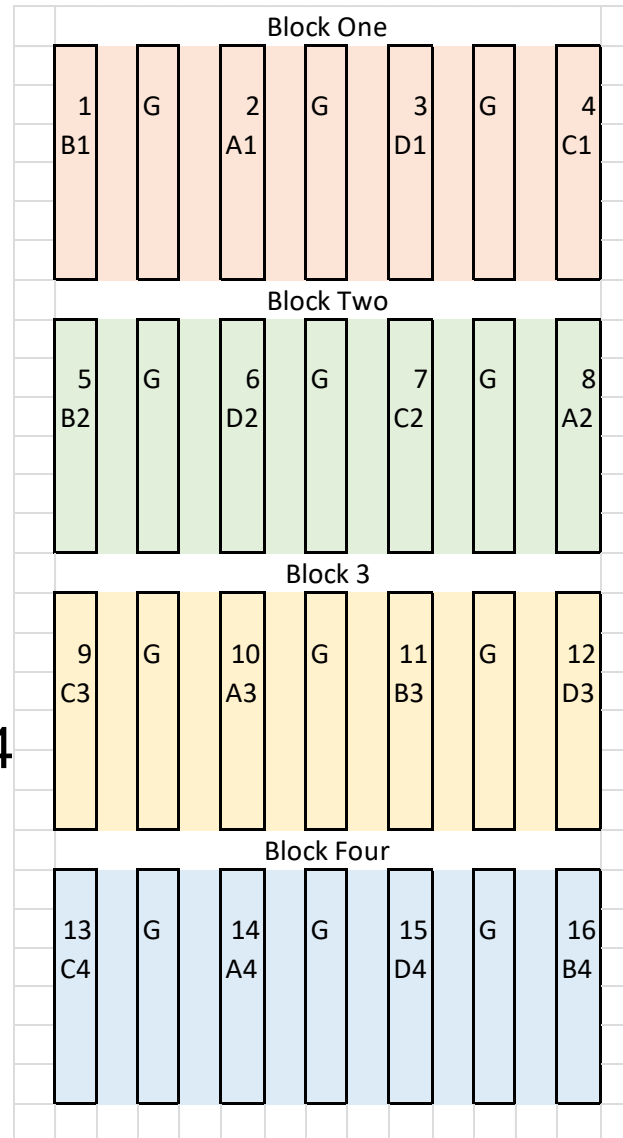


# Number of Plants Throughout Season



# Insecticide

- Tat Soi
- Insecticides
  - Neemix
  - Safer Insect Soap
  - Venerate
- Sprayed per label instructions for 4 weeks ~ after threshold was met
- Insect identification, percent damage, harvest

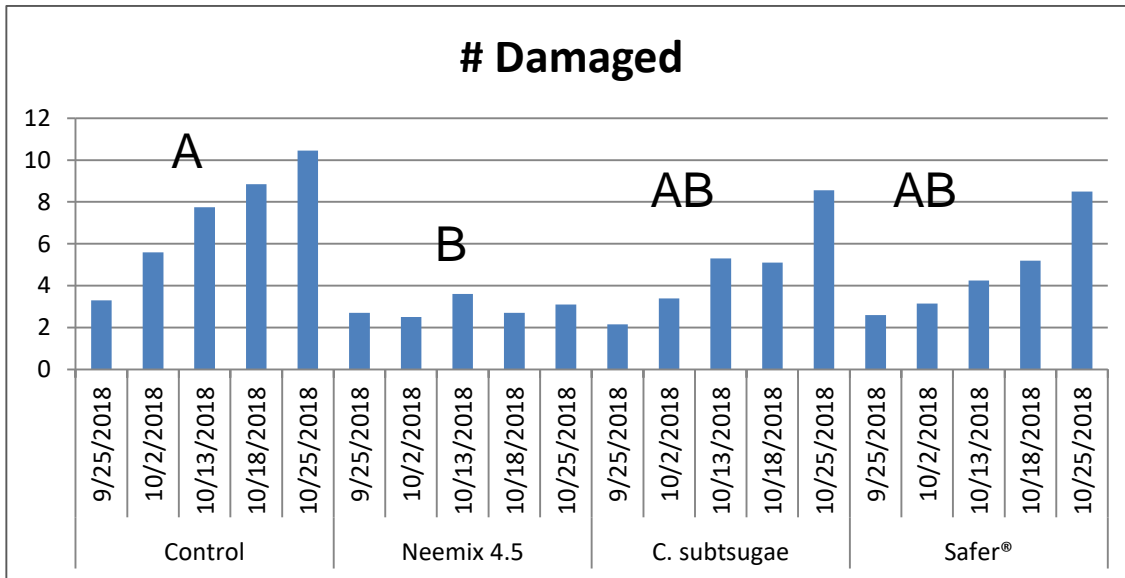
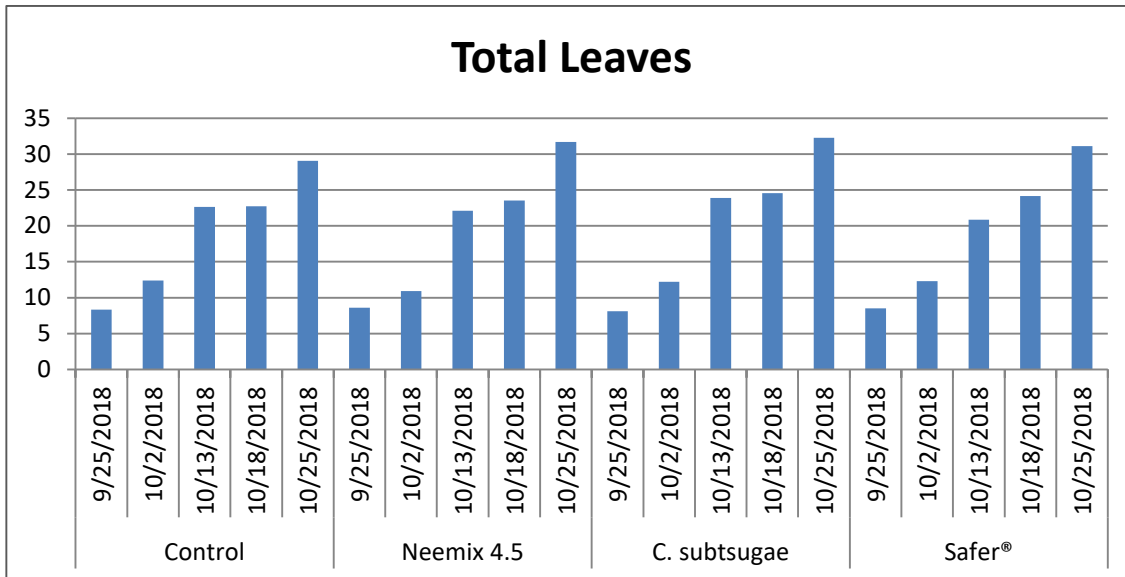


Treatments:	
A	Control
B	neem oil (Neemix 4.5, Certis USA LLC, Columbia, MD)
C	Burkholderia spp. Strain A396 (Venerate XC Marrone Bio Innovations, Davis, CA)
D	insecticidal soap (Safer®Insecticidal Soap, Woodstream Canada Corporation, Lititz, PA)
.75m	
.75m	

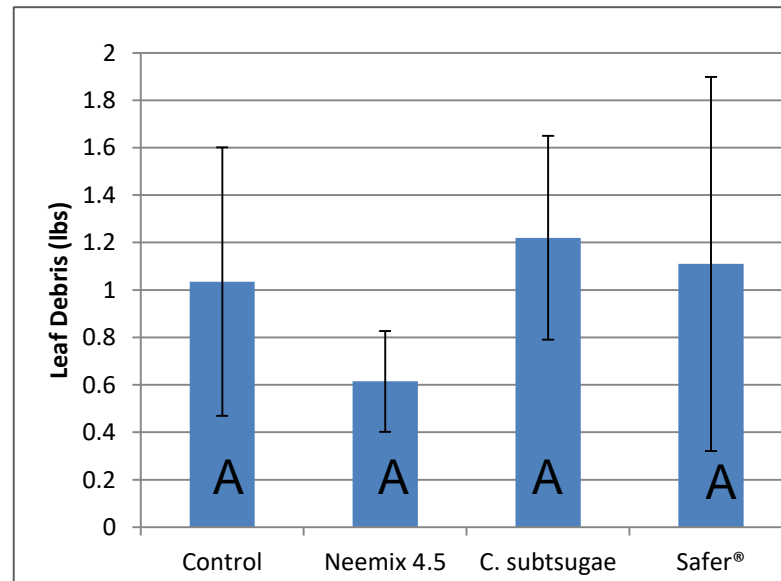
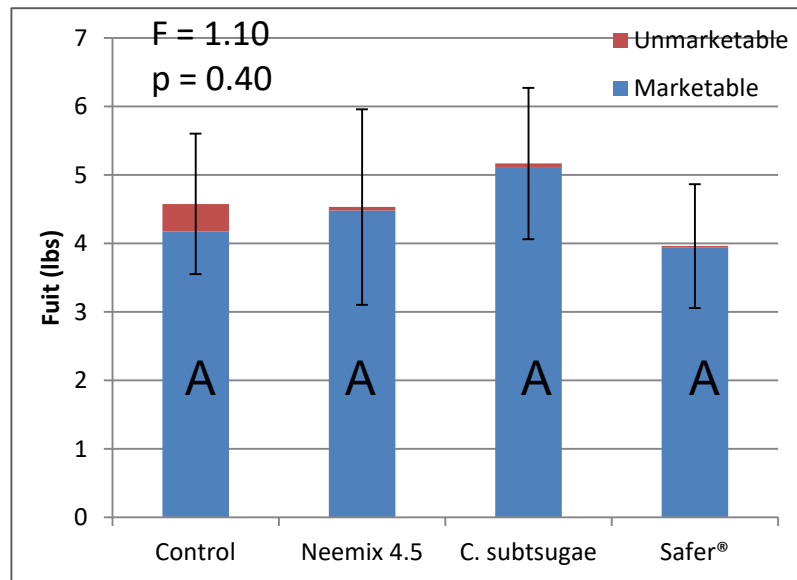
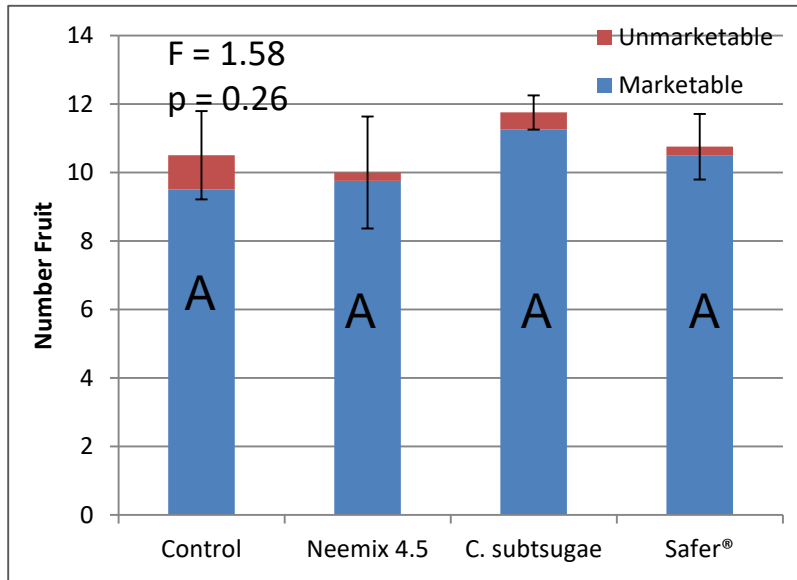




# Average Total Insect Damage for all Treatments by Date



# Marketable and Unmarketable Harvest by Treatment







# Equipment



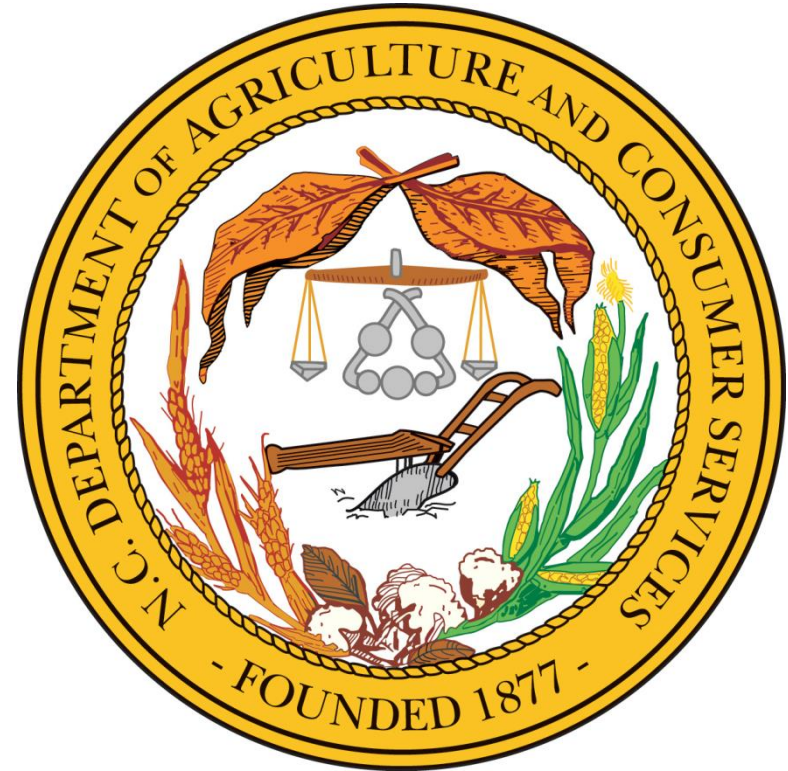
# Reading Your Label

- Always follow label instructions
  - Application Amount
  - Personal Protective Equipment
  - Re-entry and Days to Harvest
  - Environmental Hazards
- What your spraying/applying **MUST** be labeled for your target control or crop



# Pesticide Safety and Your Farm

- What is a pesticide license?
- When do you need a license?
- Beyond proper application:
  - Beneficial Insects
  - Pollinators
  - Farm animals/livestock
  - Customer Concerns





# How can you be involved in CFSA research?

- Complete our surveys and evaluations!!!
- Visit Lomax Farm
  - Annual Lomax Field Day: May, 2019
  - Volunteer Days: April and October 2019
  - Schedule a tour
- Interested in on-farm research?  
Contact me!
  - [gena@carolinafarmstewards.org](mailto:gena@carolinafarmstewards.org)



# COMMENTS

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Thank you!