

The Effectiveness of AV2022 as an Avian Repellent When Applied Prior to Seed-Set



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Brief Background



Problem and Possible Solution



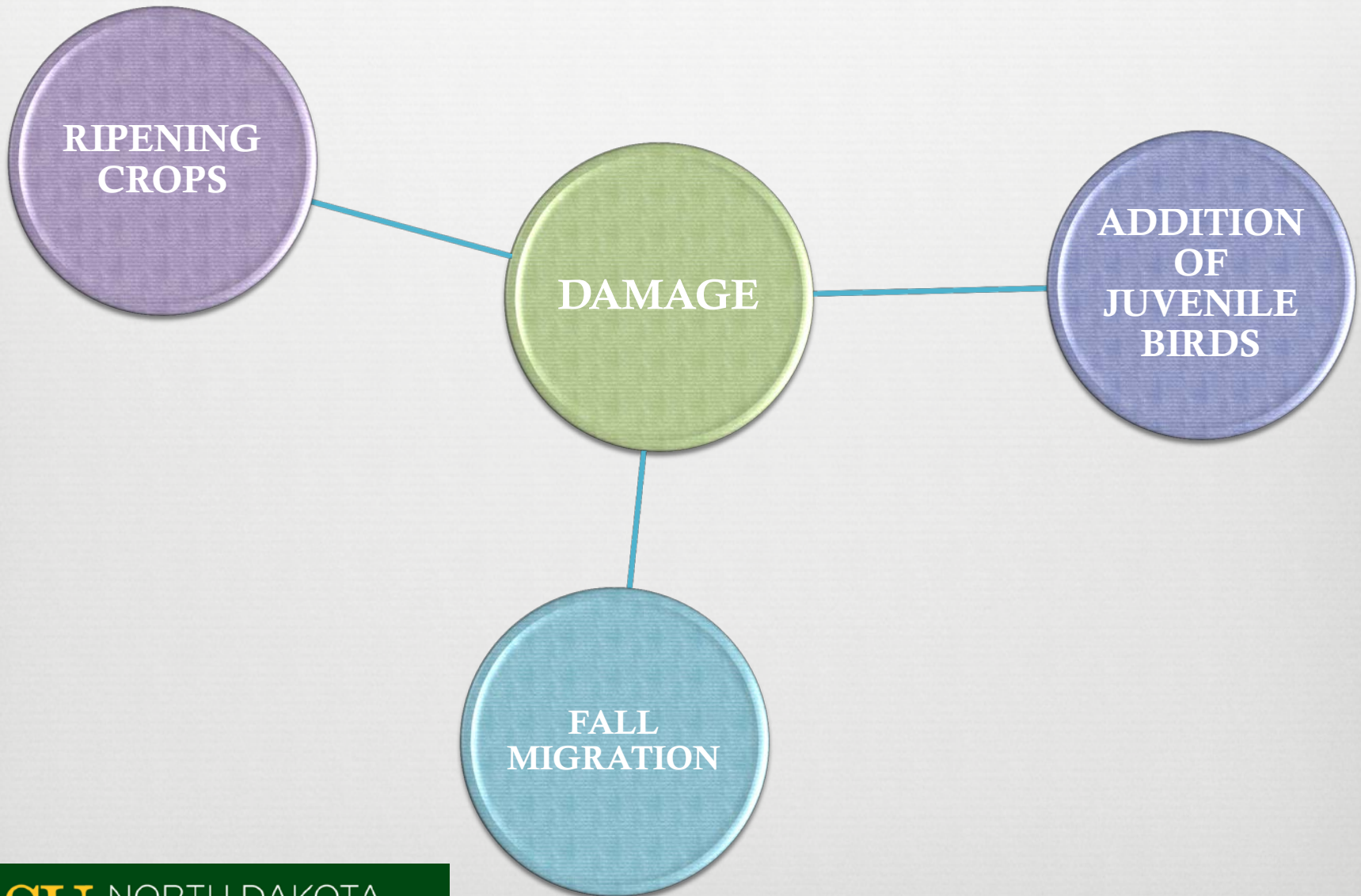
Photos from: Terry Sohl <http://sdakotabirds.com> (November 13, 2013)

DAMAGES



- ❧ Birds target many crops
- ❧ Millions of dollars lost annually
- ❧ Damage not equal among growers

WHY?



RIPENING
CROPS

DAMAGE

FALL
MIGRATION

ADDITION
OF
JUVENILE
BIRDS

An Effective Repellent:



- ❧ Reduces damage
- ❧ Costs less than expected damage
- ❧ Is easy to apply
- ❧ Is non-toxic

9,10 Anthraquinone



- ❧ “AQ”
 - ❧ Active ingredient in AV2022
 - ❧ Secondary repellent
 - ❧ Causes slight stomach illness
 - ❧ Learning response required
 - ❧ Consistent laboratory trials
 - ❧ Visible in the UV spectrum

Last Time...

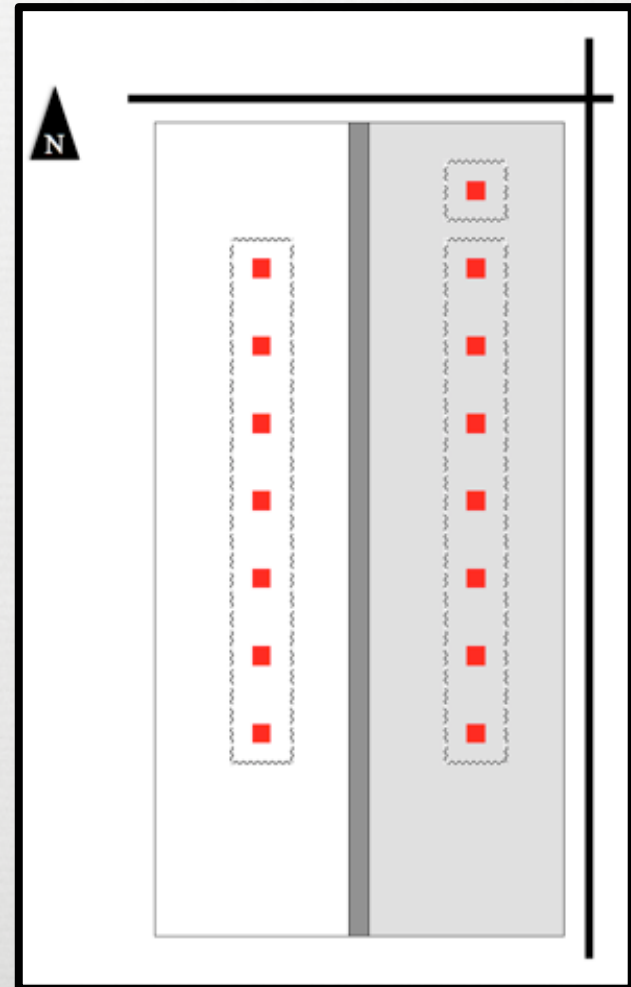


- ❧ In 2012
 - ❧ Open field test
 - ❧ 3 fields of 2.23ha
 - ❧ Tested Avipel®
 - ❧ Applied at R6 (petal drop)
- ❧ Inconclusive results
 - ❧ Various field complications
 - ❧ Birds
 - ❧ Weather

A Revised Plan



- ❧ AV2022
 - ❧ One field
 - ❧ Sprayed earlier
 - ❧ R5.3 (pre seed-set)
 - ❧ Pollinator survey
 - ❧ Field enclosures
 - ❧ 3 to 4 birds in each
 - ❧ 6 cages per half field
 - ❧ Record food consumed
 - ❧ Record damage



Merits of Different Field Tests



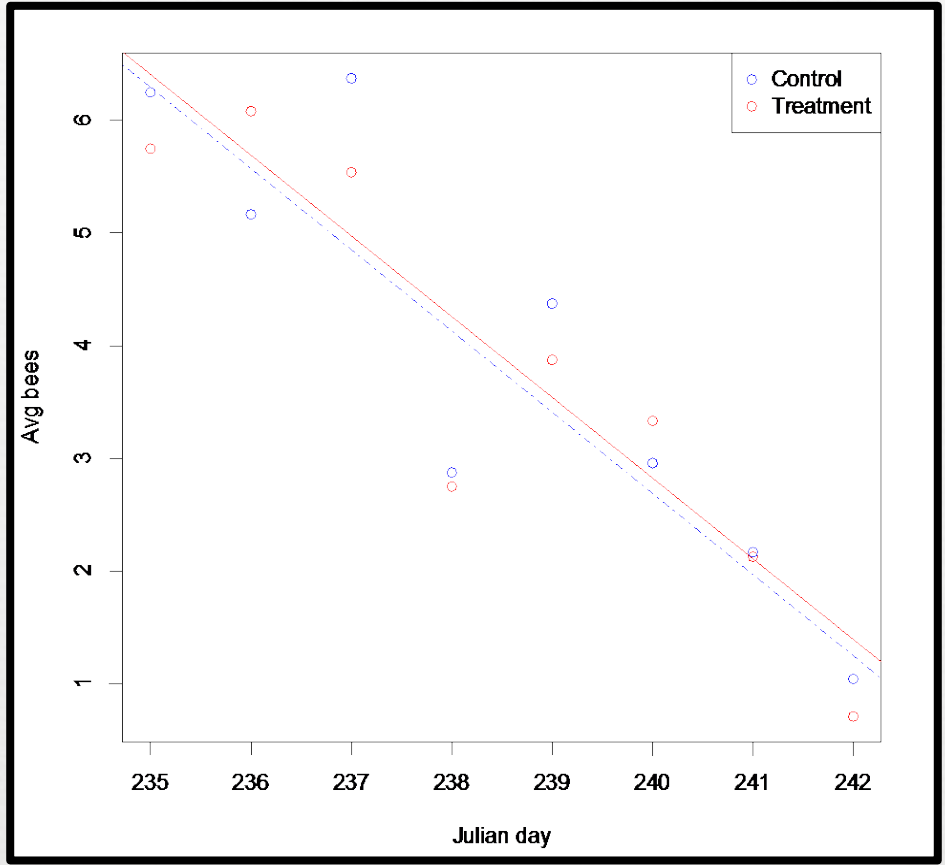
Open-Field (2012)

- ↻ Pros:
 - ↻ Accurate field conditions
 - ↻ Easy set-up
 - ↻ Bigger sample area
- ↻ Cons:
 - ↻ Weather anomalies
 - ↻ Birds move out of area
 - ↻ Expensive
 - ↻ Hard to monitor

Field Enclosure (2013)

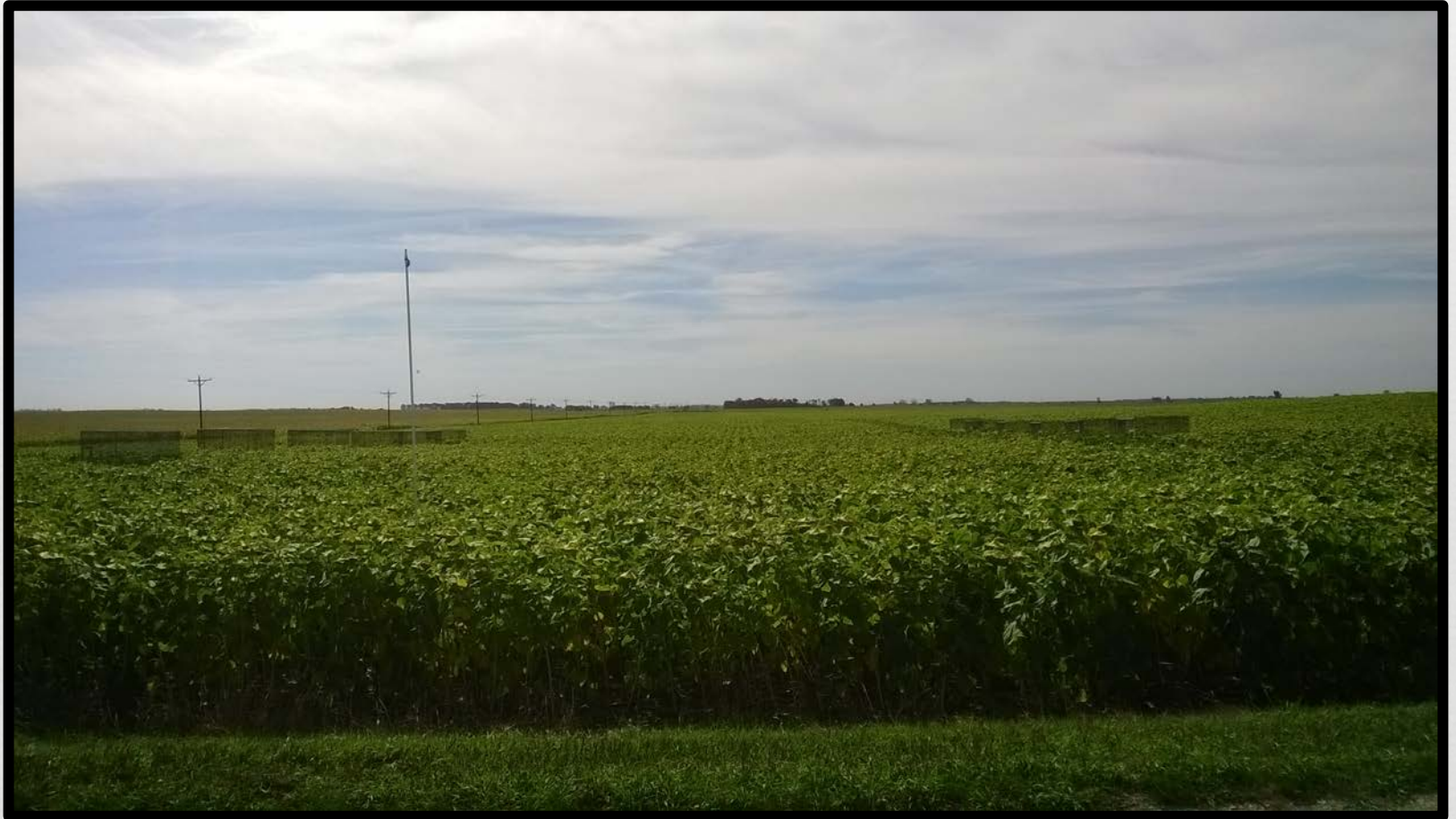
- ↻ Pros:
 - ↻ Keeps birds in one place
 - ↻ Easy data collection
 - ↻ More data points
- ↻ Cons:
 - ↻ Weather anomalies
 - ↻ Not true field conditions
 - ↻ Predators
 - ↻ Restricted area

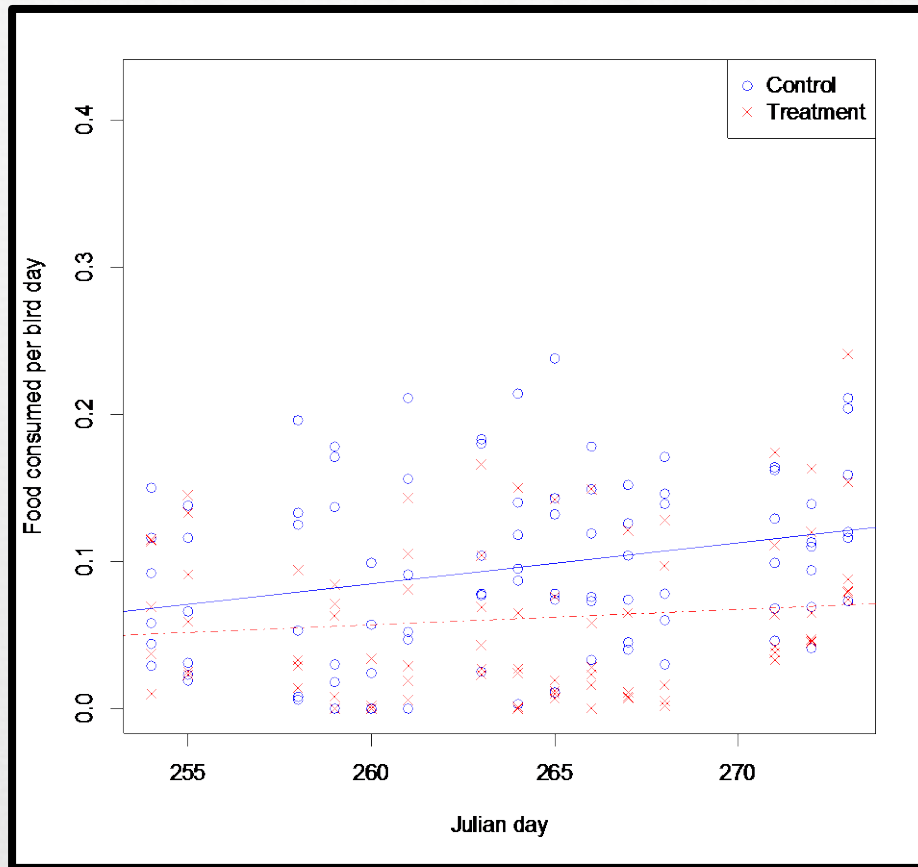




Pollinator Survey



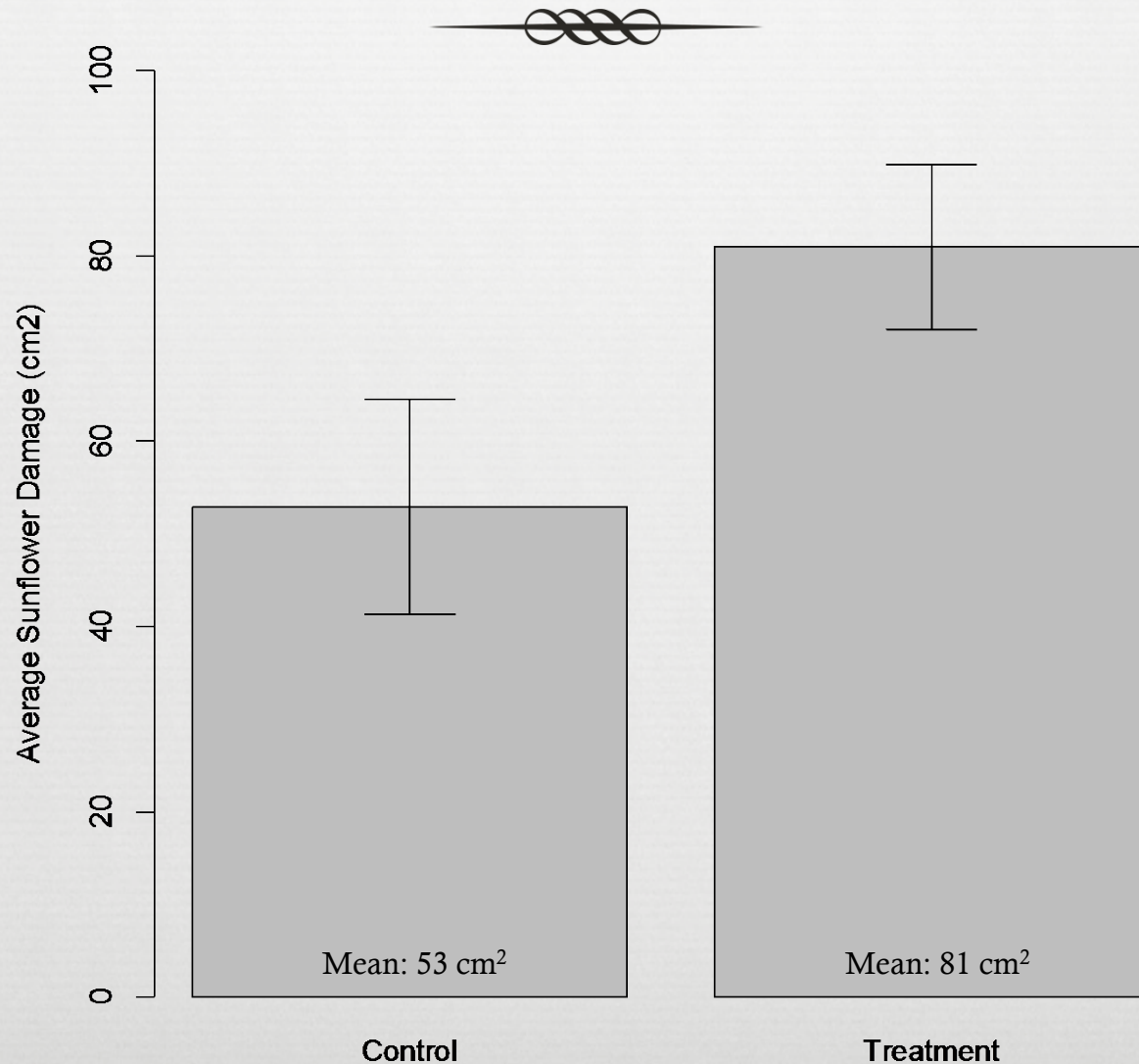




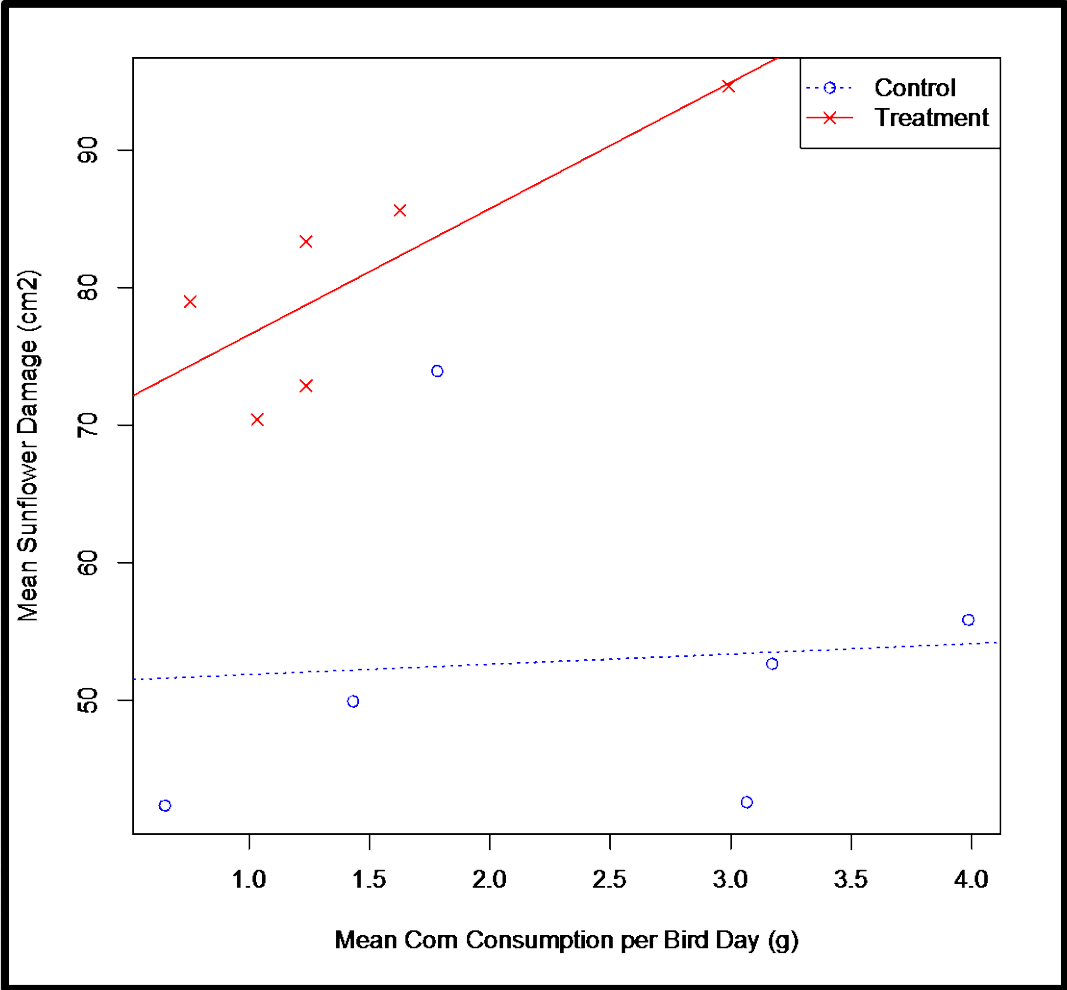
Maintenance Diet Consumption



Average Sunflower Damage



Correlation Between Sunflower Damage and Maintenance Diet Consumed

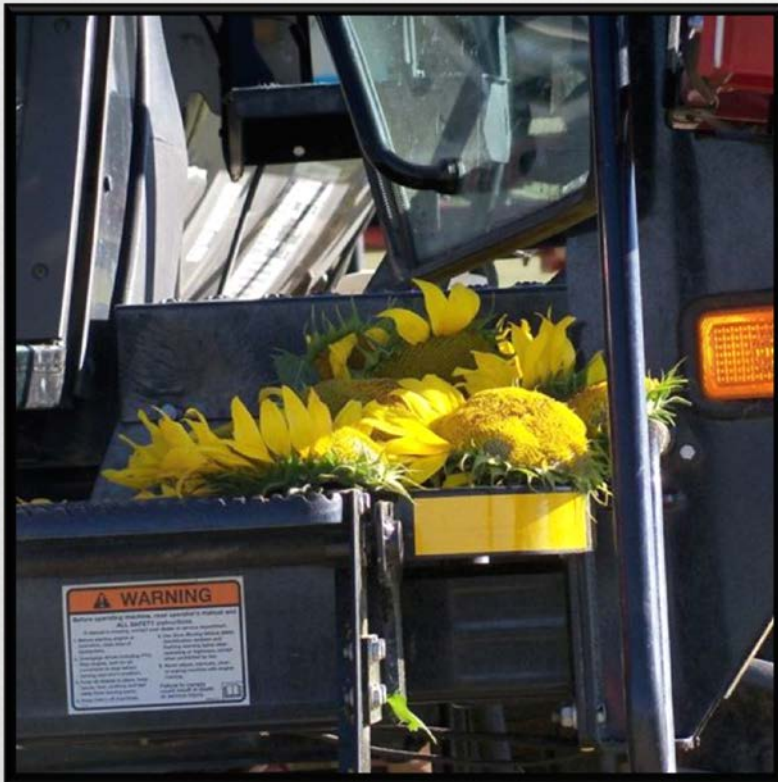


Possibilities For Trend



- ❧ Birds misidentified what had been treated
- ❧ Sunflower head rubbing
- ❧ Size of sunflower heads
- ❧ Combinations of above

Application Issues



- ❧ Commercial sprayers not high enough for some varieties
- ❧ Coverage of developing sunflowers

The Future for AQ



- ❧ Lab results suggest effectiveness
 - ❧ Werner *et al.* 2011
 - ❧ Grackles and Avipel
- ❧ Under conditions of our tests, AQ was not a feeding deterrent
- ❧ Large-scale field trials still to be conducted
- ❧ Development of foliar treatment is on-going
- ❧ Use for other crops, especially ripening rice and sprouting soybeans

Future Needs



- Alternative methods needed
 - Continue to develop and improve scare devices
 - Perennial sunflower
 - Benefits



Special Thanks To:



- ⌘ USDA Wildlife Services
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- ⌘ Nicole "Nik" Snyder
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