

Status of Anthraquinone Bird Repellent for Protecting Ripening Sunflower

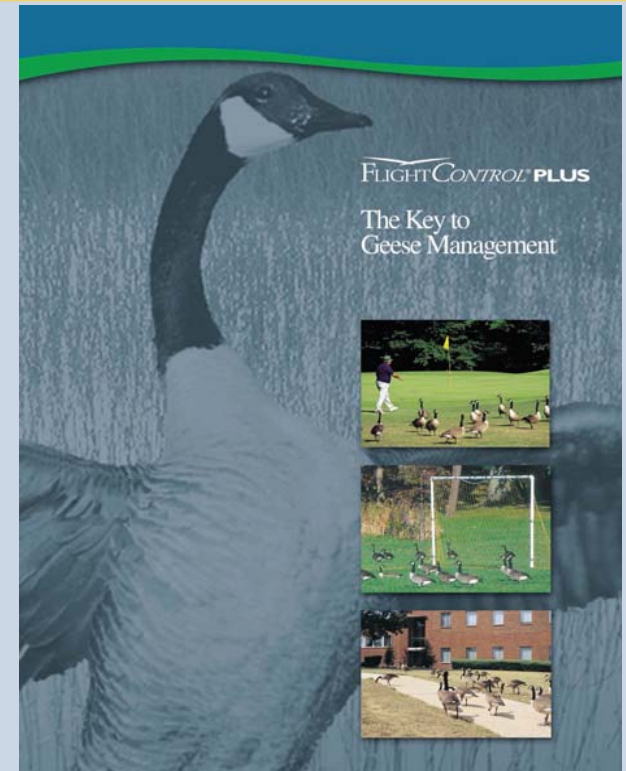
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Susan Pettit & Shelagh Tupper**

**NSA Research Forum
Fargo, ND**

January 13, 2010

Anthraquinone Bird Repellents

- **Flight Control® Plus Goose Repellent**
active ingredient: 50% 9,10-anthraquinone
current EPA registration for applications at:
 - airports
 - urban areas
 - golf courses
- **Avipel® (a.i. 50% 9,10-anthraquinone)**
2009 Exemption Labels (Sect 18):
 - **corn seed treatments**
LA, MI, MN, MS, ND, SD, TX, WI
 - **rice seed treatments**
LA, MS, MO



Anthraquinone for Ripening Sunflower- Fall 2009

(supported by ND, ND Oilseed Council, NSA)



United States Department of Agriculture
Animal and Plant Health Inspection Service

Wildlife Services
NWRC
National Wildlife Research Center

AQ for Ripening Sunflower

Planted confection sunflower: **June 30, 2009**

20 bird enclosures (4 m x 4 m) established: **July 15**

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R-6 Growth Stage: **Sept 8**

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AQ for Ripening Sunflower- test spray residues

3,500 ppm

6,000 ppm

1X

16,500 ppm

2X

4X

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Hand-sprayed 10 enclosures (2 gal Avipel/ac): **Sept 15**

Populated each enclosure with 10 Grackles: **Sept 15**

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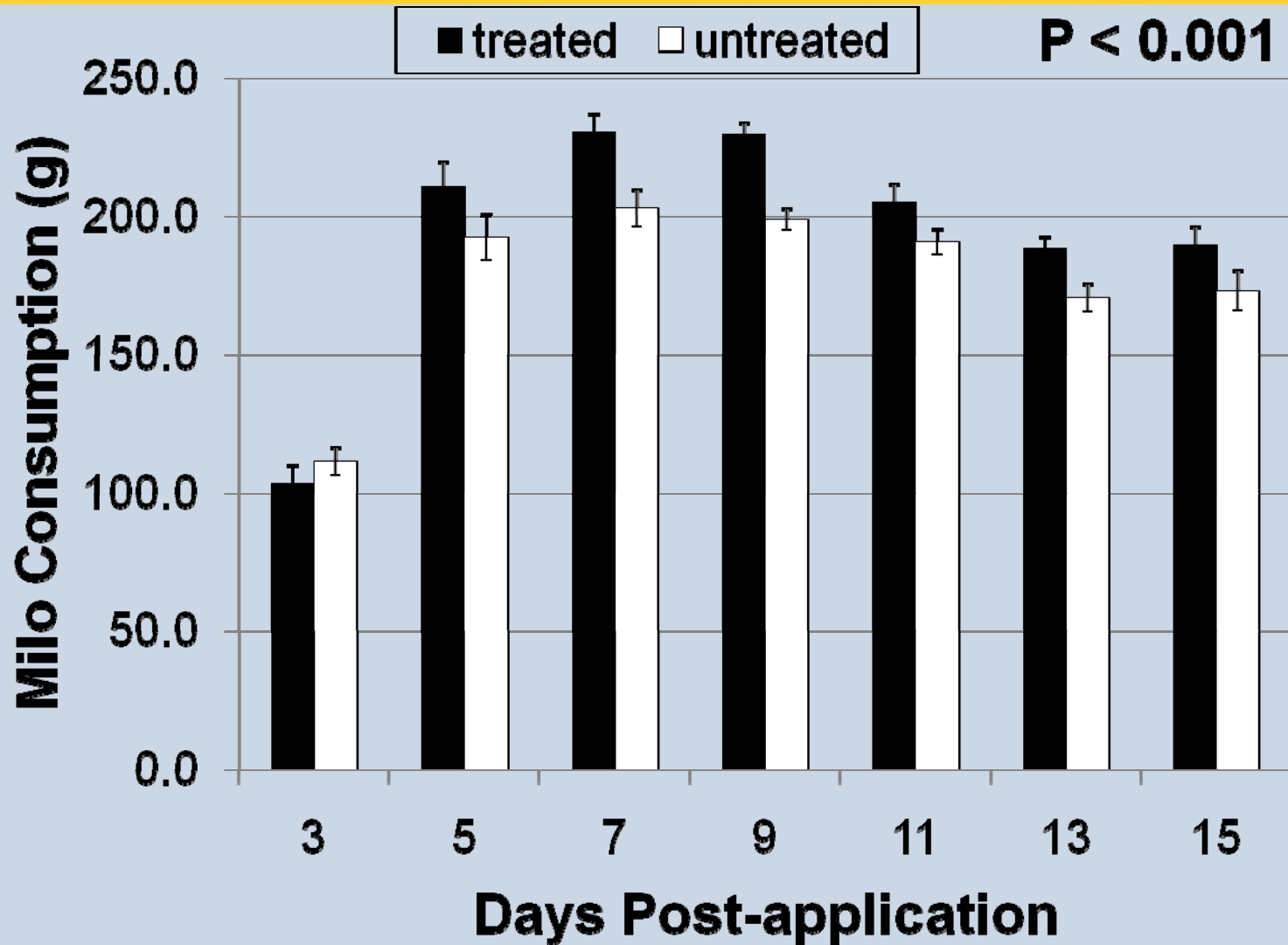
Populated each enclosure with 10 Grackles: **Sept 15**

Removed all birds (15 days post-applic): **Sept 30**

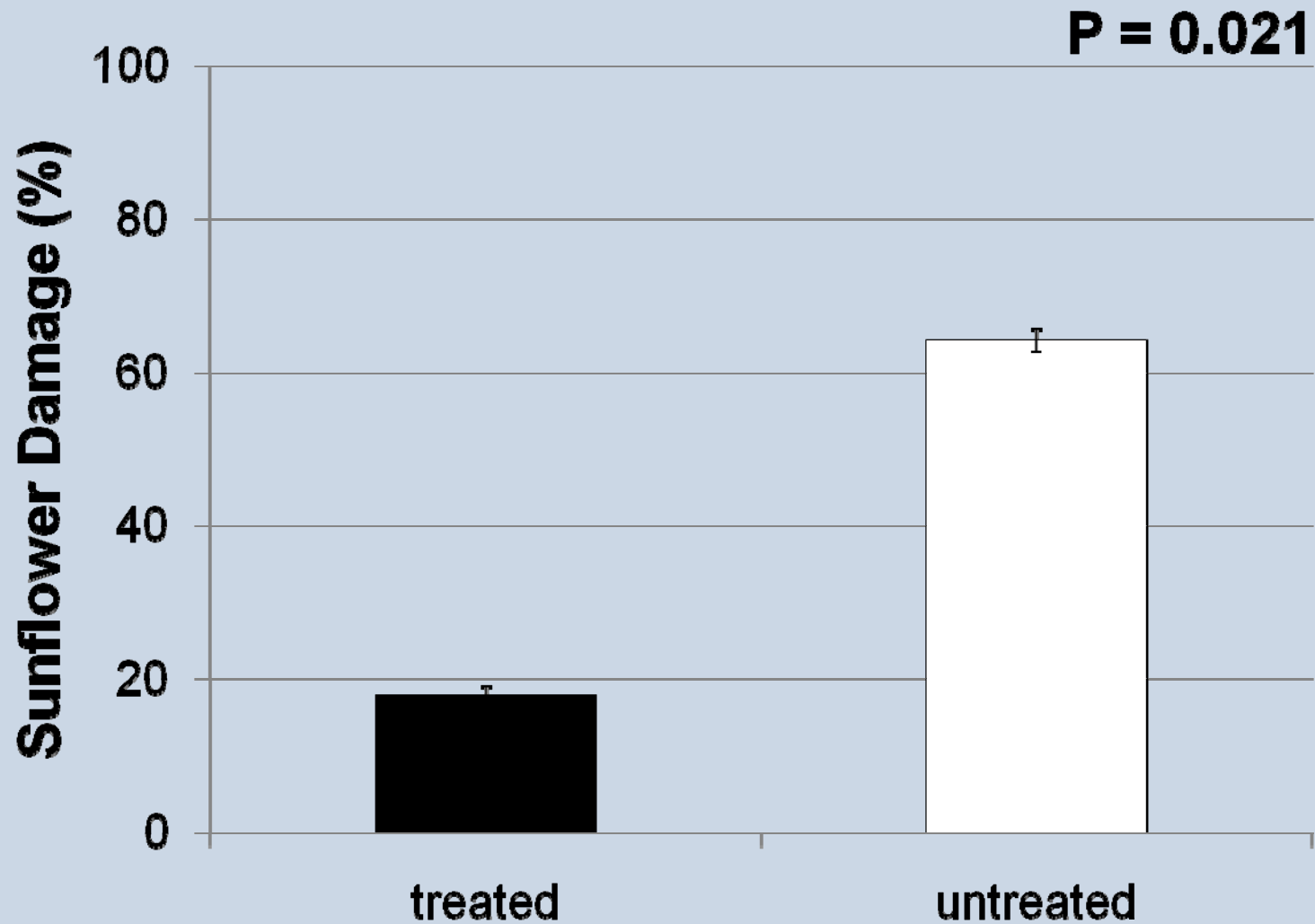
Hand harvested plots: **Oct 2**

Field harvested: **Nov 11**

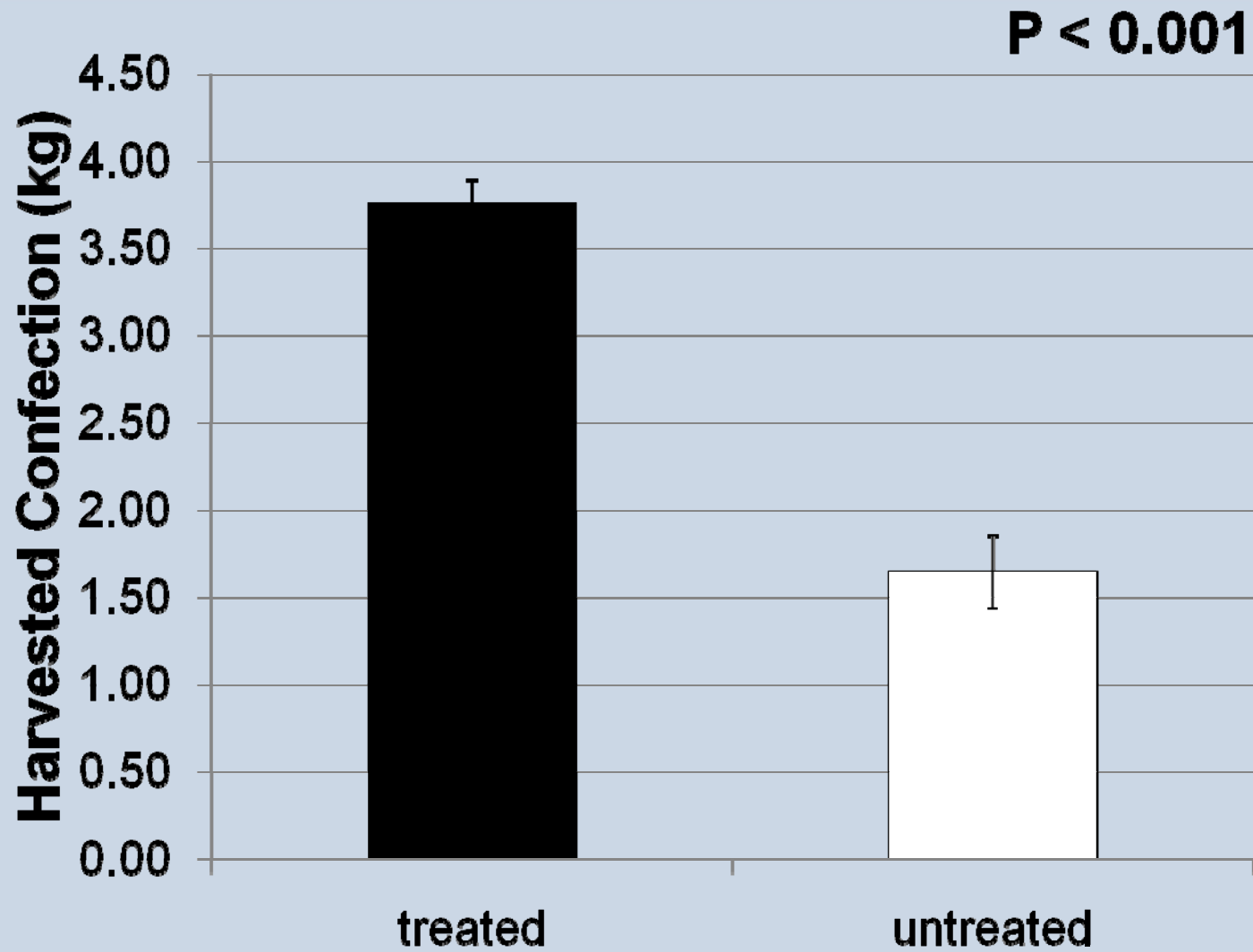
AQ for Ripening Sunflower- Maintenance Diet Consumption



AQ for Ripening Sunflower- Damage Assessments



AQ for Ripening Sunflower- Seed Mass



Anthraquinone Cage Efficacy

| Bird | Seed | Threshold Concentration |
|----------------------|----------------------|--------------------------------|
| Common Grackle | Confection Sunflower | 2% |
| Red-winged Blackbird | Oilseed Sunflower | 0.15% |

AQ for Ripening Sunflower- 2010 plans

24 bird enclosures- oilseed sunflower

Spray 0, 0.5 & 1 gal Avipel/ac @ R-6

Populate each enclosure with 10 Red-winged blackbirds