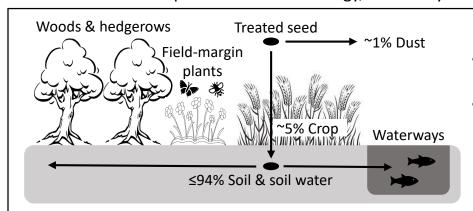
Costs and Benefits of Neonicotinoid Seed Treatments (NSTs) in Maryland Grain Production

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Background

- NSTs are most effective against early season soil and seedling insect pests
- NSTs can move through the environment and be persistent for several years, potentially impacting non-target organisms

Sites

WyreREC, Queenstown MD CMREC, Beltsville MD

Treatments

Control or untreated seed
Fungicide only
Fungicide + Cruiser
(thiamethoxam)
Fungicide + Gaucho
(Imidacloprid)

Rotation

Full Season (F.S.) Soybean 2015

Winter Wheat 2015-2016

Double Cropped (D.C.) Soybean 2016



Corn 217

Non-Target Impacts

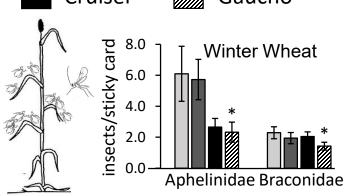
- Gaucho had greater impacts than Cruiser.
- In wheat, Gaucho suppressed important aphid natural enemies: aphelinid and braconid wasps.
- Other impacted natural enemies: lady beetles, minute pirate bugs, spiders, rove beetles.





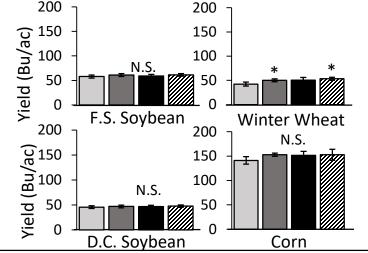






Pest Control & Yield

- Pest levels below economic thresholds throughout study.
- Aphids reduced in wheat in winter but not spring; flea beetles reduced in corn.
- Fungicides improved yield in wheat but insecticides did not improve yield in any crop.



Conclusions

- Effective against soil pests like wireworms and white grubs
- Do not provide yield benefits without pest pressure
- Negatively impact natural enemies, potentially disrupting natural pest control.