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Farming since 1976
Organic since 2001
300 acres


Contour rows, no-till, prairie strips, grass waterways & headlands, cover crops, no primary tillage

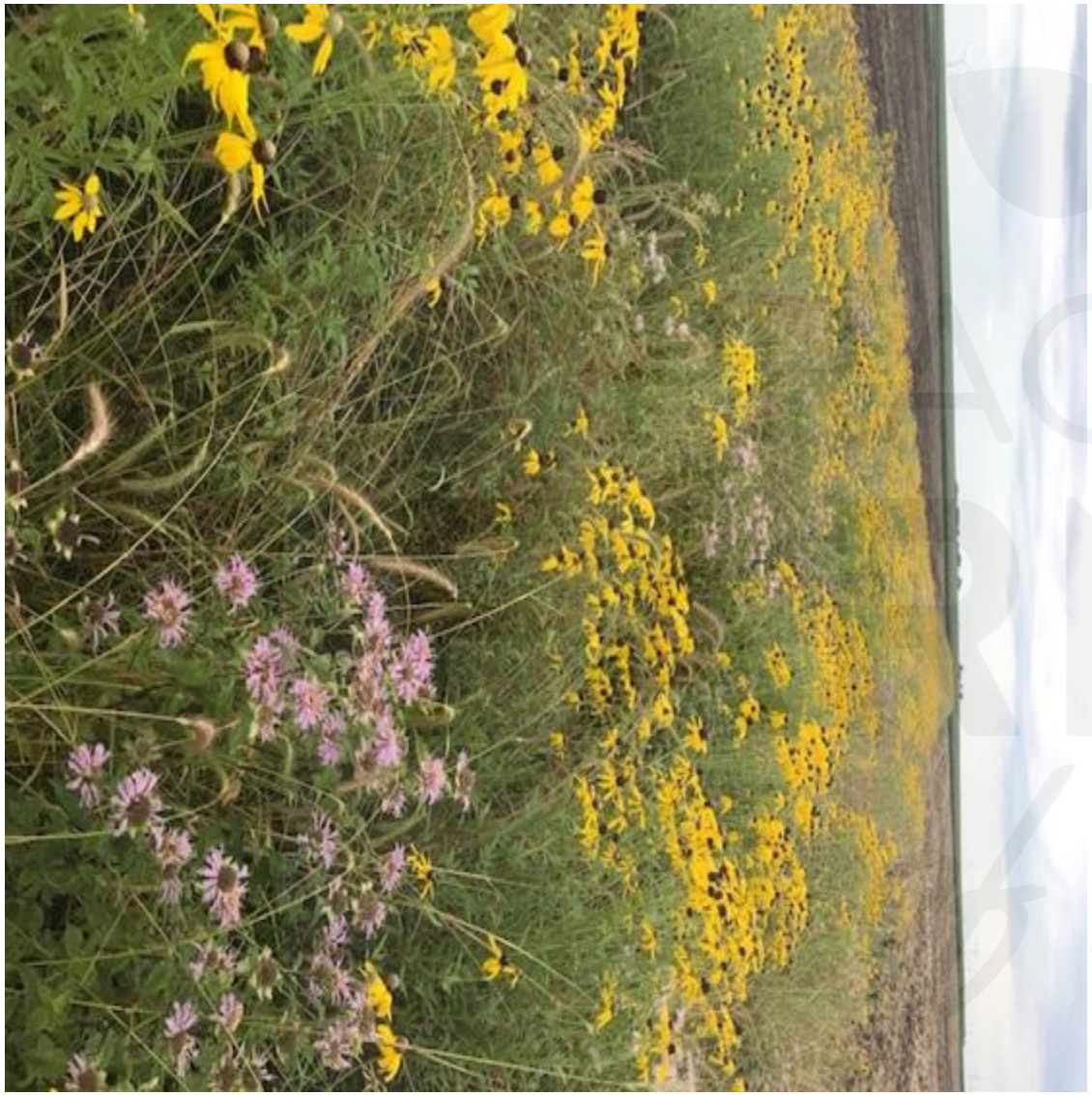
CRP Strip – established in 2002

- Pollen barrier
- Living snow fence
- Trees and shrubs
- 15 year contract
- Renewed in 2016
- Ecological trap?

CRP Project

CSP Strip – established in 2015

Latest Strip – Established 2018



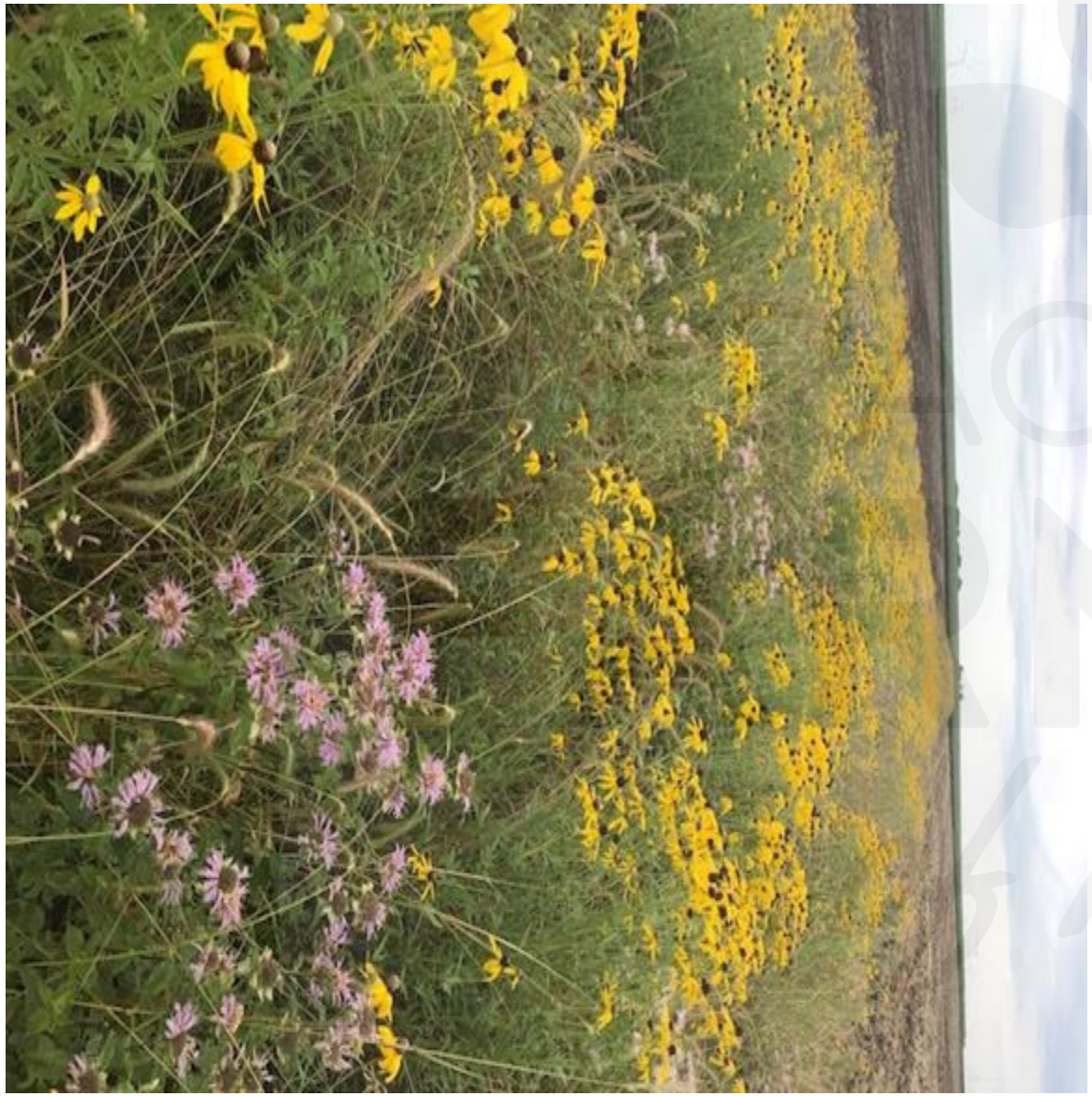
XERCES SOCIETY
for Invertebrate Conservation

- Protect pollinators
- Largest invertebrate conservation society in the world
- Insects
  - world needs insects
  - many species threatened
  - base of food systems
  - clean rivers
  - improve soil health

Seeding the Newest Strip

Latest Strip late season

Many Benefits



- 2.6 fold ⟩ insect taxa richness
- 3.5 fold ⟩ pollinator abundance
- 2.1 fold ⟩ bird species richness
- 2.1 fold ⟩ abundance of bird species of greatest conservation need
- greater bee species richness and abundance

Research Highlight: Prairie strips support farmer's soil, water, and wildlife conservation goals, 2018

Biodiversity

- Higher infield diversity = ⟩ arthropod abundance
- Both pollinators & predators
- But not herbivores

A synthesis of the effects of diversified systems…., Lichtenberg, Global Change Biology, 2017

Beneficial Insects

photos Xerces Society

Syrphid fly

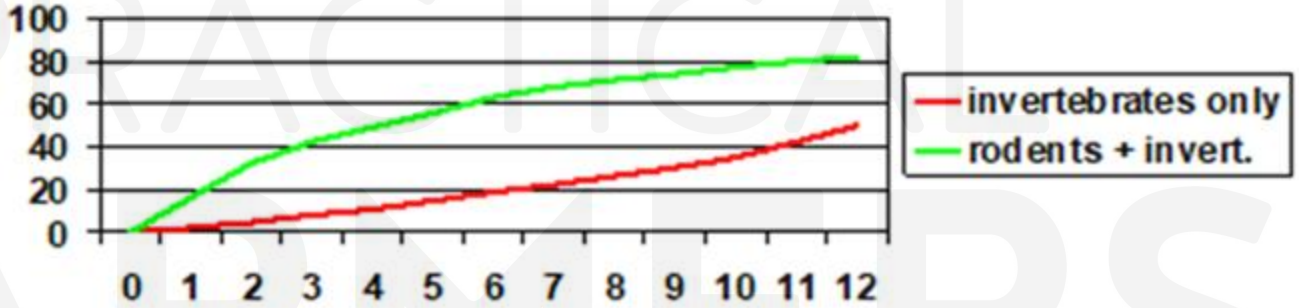
Pennsylvania leatherwing

Seed Predation

- Leave seed on soil surface
- Habitat on field borders, etc.
- Small fields (diversity helps)
- Need cover & overwinter habitat

Iowa Organic Association

Predation of Giant Ragweed Seeds



Cumulative seed predation (%)

vs.

Time after seed dispersal (months)

Beetle Bank

Wildlife Habitat

- Significantly higher density of birds
- Dickcissel, eastern meadowlarks, and grasshopper sparrow
- red-winged blackbirds fledge 2.1 times more often

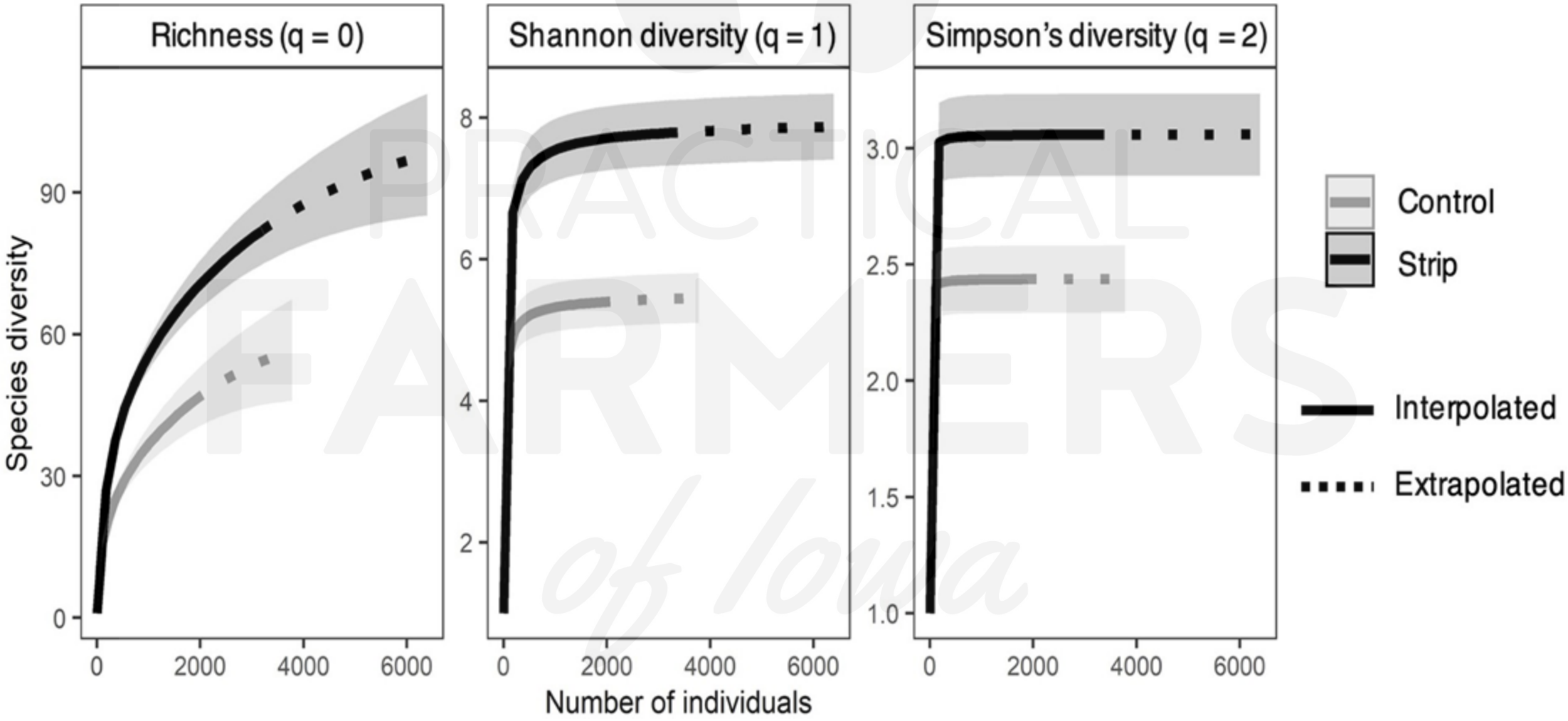
A synthesis of the effects of diversified systems…., Lichtenberg, Global Change Biology, 2017

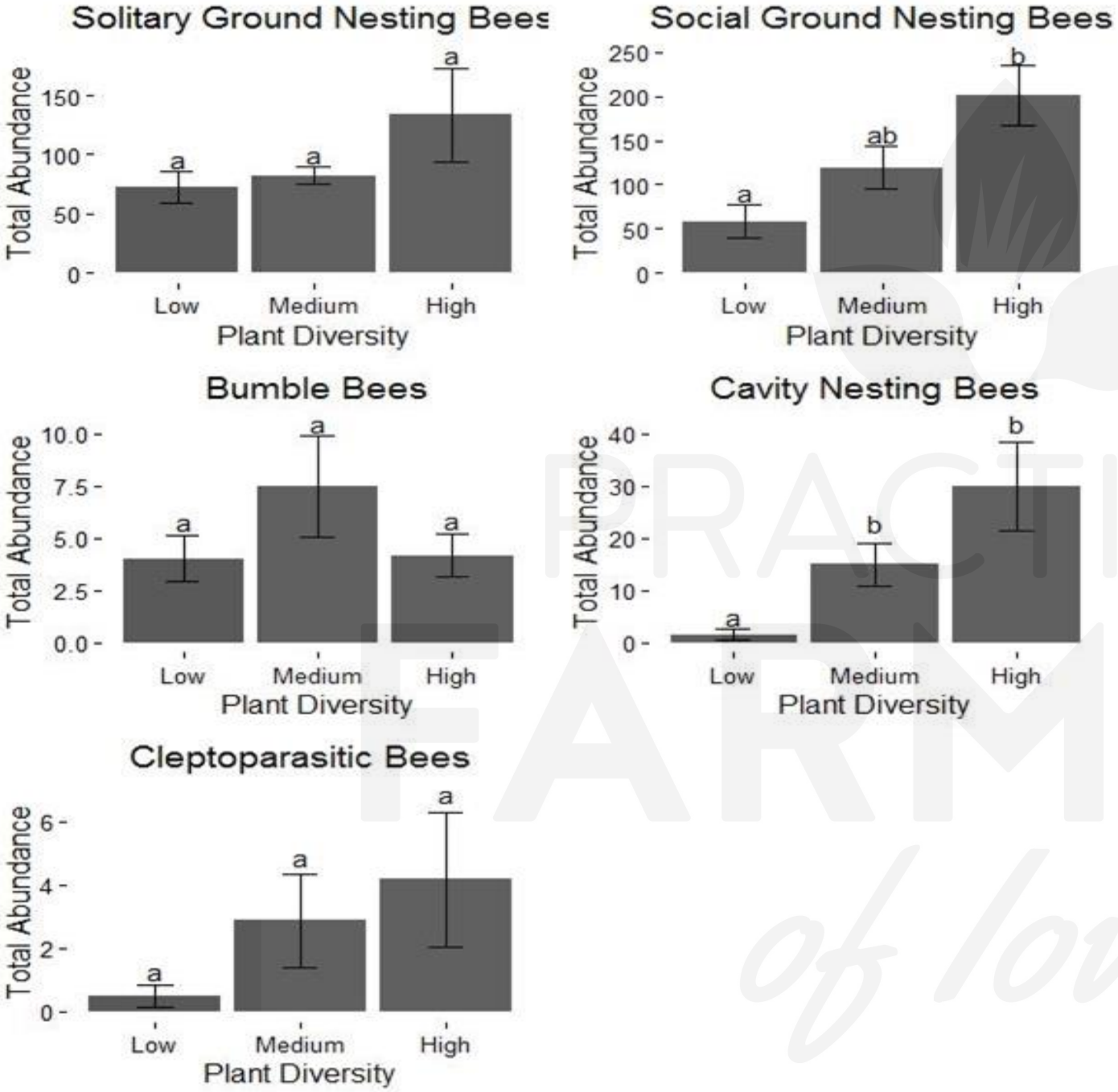
Neonicatinoids

from Nat'l Climate Assessment
ISU Prairie STRIPS
photo *Farnaz Kordbacheh*

Strips of prairie vegetation placed within row crops can sustain native bee communities

2020, **Farnaz** **Kordbacheh 1*, Matt Liebman1, Mary Harris2, 2019**





- Total bee abundance in each plant diversity level for each guild of bees (solitary ground nesting bees, social ground nesting bees, bumble bees, cavity nesting bees and cleptoparasitic bees) across 2014 and 2015 in contour buffer and filter strips with standard error bars.

- Amy Lynn Moorhouse
- Iowa State University , 2016

Prairie Strips

- Org. = incr. beneficial insect diversity,

"A global synthesis of the effects of diversified farming systems…", Global Change Biology 23(11): 4946-57

- Org. support 50% more pollinators

"Comprehensive Assessment of Soil Health", The Cornell Framework Manual

Pollinator Habitat

. Point estimates for the multiplicative relationship of the treatment (10–20% prairie) versus the control (0% prairie)

Prairie strips improve biodiversity and the delivery of multiple ecosystem services from corn–soybean croplands , Lisa Schulte, 2017

	abundance	diversity	species richness
insects	1.55	1.14	2.61
natural enemy insects	1.46	1.06	2.2
pollinator insects	3.47	1.89	2.44
birds	2.63	1.94	2.08
birds SGCN	2.06	1.71	1.75
grassland birds	1.13	1.11	1.11

Benefits in addition to the physical ones

- Prairie strips improve biodiversity and the delivery of multiple ecosystem services from corn–soybean croplands
- Lisa A. Schulte , et al 2017

Aesthetics

Challenges

- Canada thistle
- Marestail
- Brome encroachment
- Alternate hosts?
- Pest habitat?
- Insecticide/herbicide

PFI Field Day


Questions?