2019 Alfalfa/Pasture Weed Research Update

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YOUR UW

HOME TOOLS PEOPLE RESOURCES RESEARCH LINKS

WE RESEARCH WEEDS AND INVASIVE PLANTS IN THESE SETTINGS:

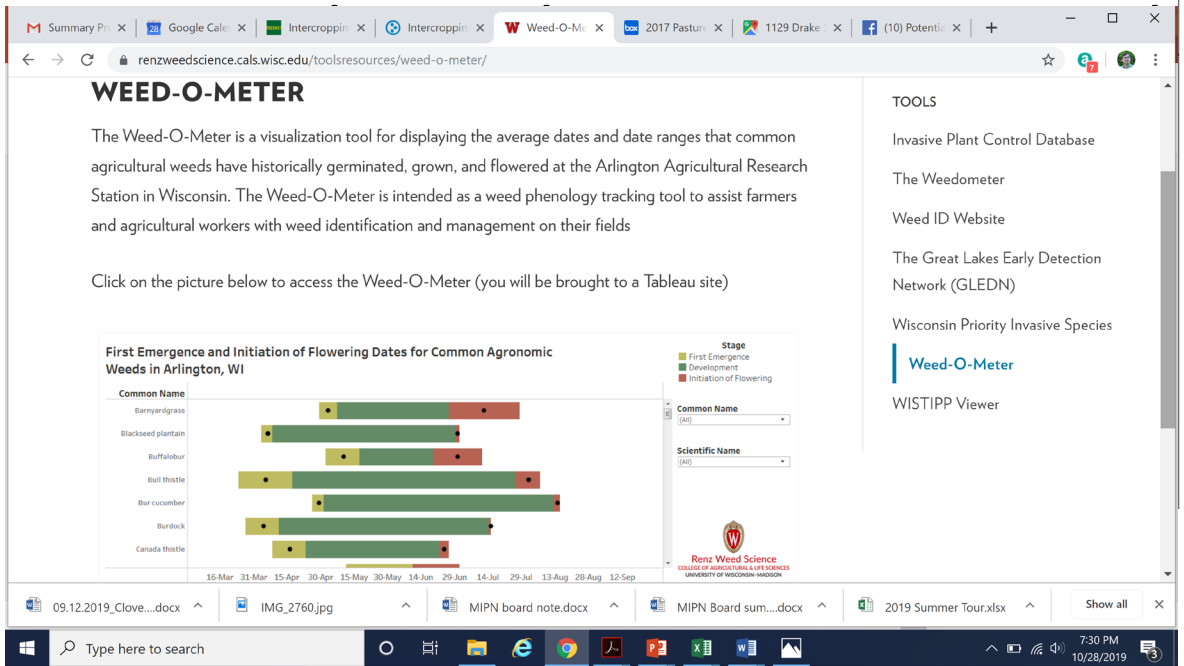
ALFALFA

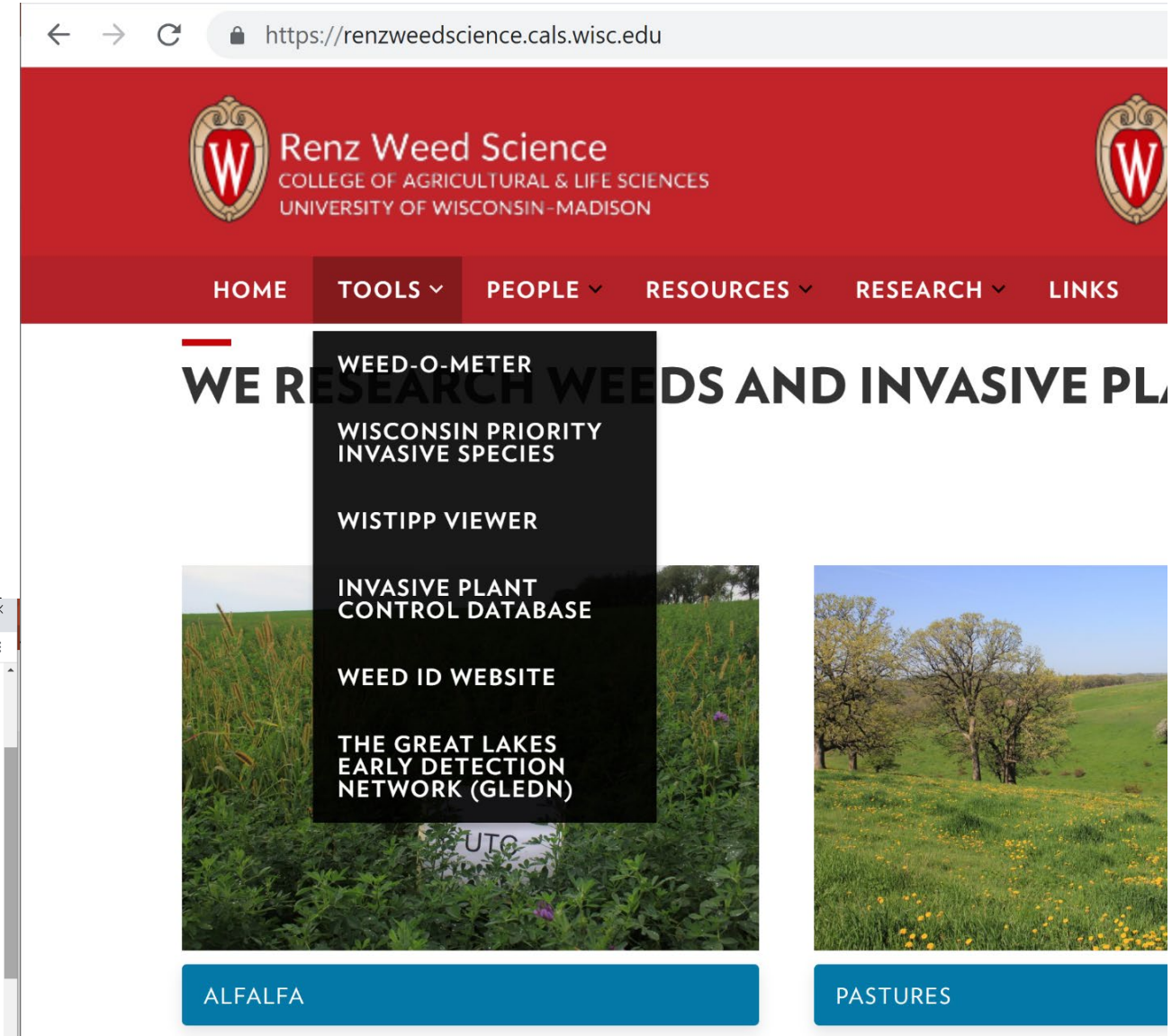
PASTURES

NATURAL AREAS / INVASIVE PLANTS

TOOLS

- Weed-o-meter
- Priority invasive species
- WISTIPP viewer
- WEED ID Website





RESOURCES

2017 Weed Identification Series

Biennial Wormwood

Biennial Wormwood is an annual, common to sandy soils and roadsides.

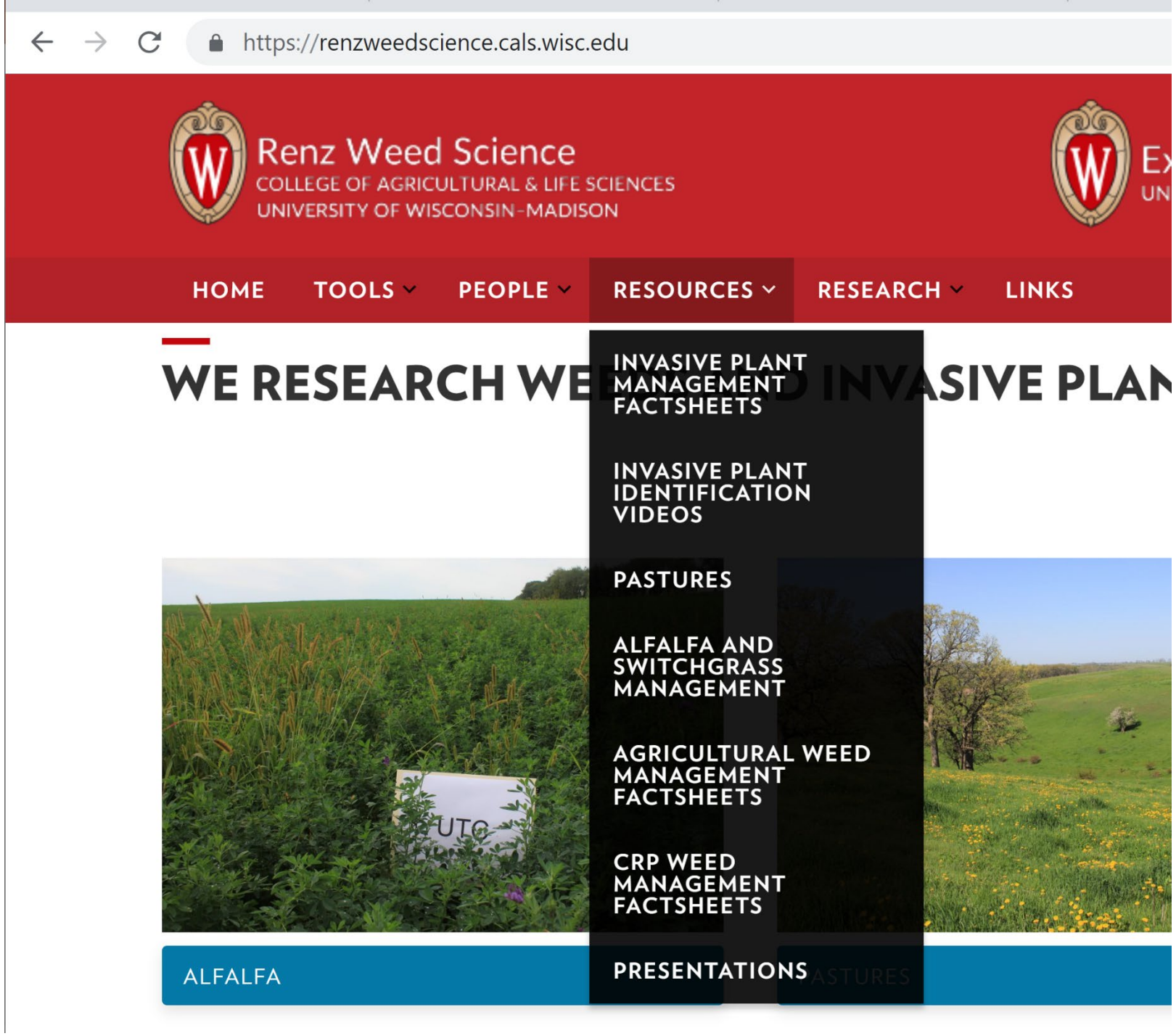
Leaves: Young leaves develop around the base of the plant (rosette) which will alternate when a stem develops. Leaves (1-3 inches long) lack hairs, are pinnately divided/lobed, and sharply toothed.

Stems: Plants produce a single, hairless stem (3-7 ft tall) with little or no branching.

Flowers: Many small inconspicuous yellow-green flowers (1/8th inch wide) grow from where the leaf connects to the stem. Flowers in August – September depending on the date of germination.

Biology: This species, while present in Wisconsin since < 1900, has been spreading over the past decade. It can be difficult to control as it emerges through July and is naturally tolerant to several common herbicides.

Similar Plants: Biennial wormwood is often misidentified as common ragweed or other wormwood species. Common ragweed has a hairy stem and leaves have round edges. Other wormwood species have a strong odor when leaves are crushed, which biennial wormwood lacks.

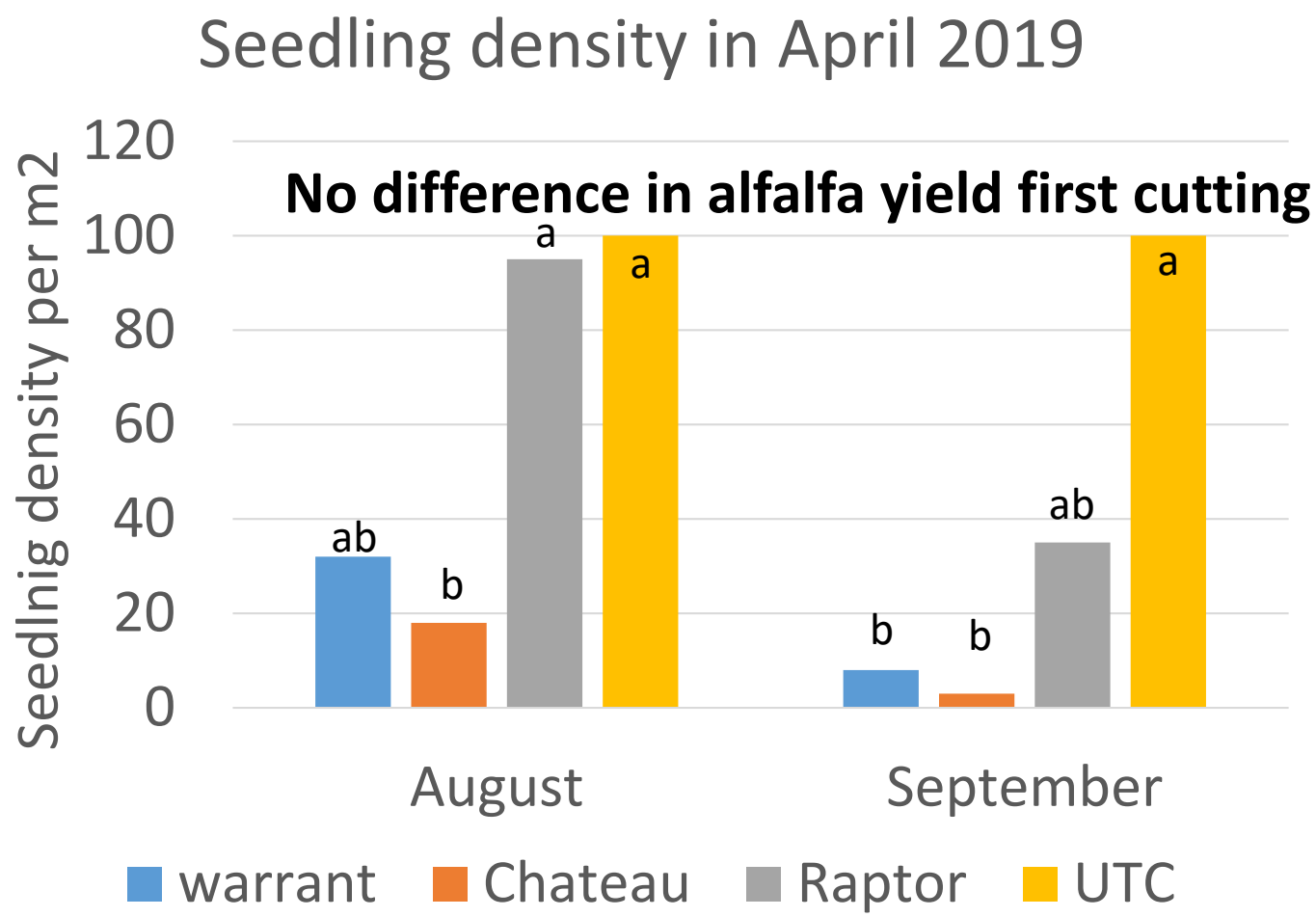


When to apply residual herbicides for winter annual control?

- Three herbicides
  - Warrant, Chateau, Raptor
- Two timings
  - August (8/2/18)
  - September (9/11/18)
- Weed species present
  - **Spring speedwell**
  - Buttercup
  - Shepard's purse

When to apply residual herbicides for winter annual control?

- Three herbicides
  - Warrant 4 pt/A
  - Chateau 4 oz/A
  - Raptor 6 fl oz/A
- Applied after harvest
  - August (8/2/18)
  - September (9/11/18)
- Weed species present
  - spring speedwell
  - Buttercup
  - Shepard's purse



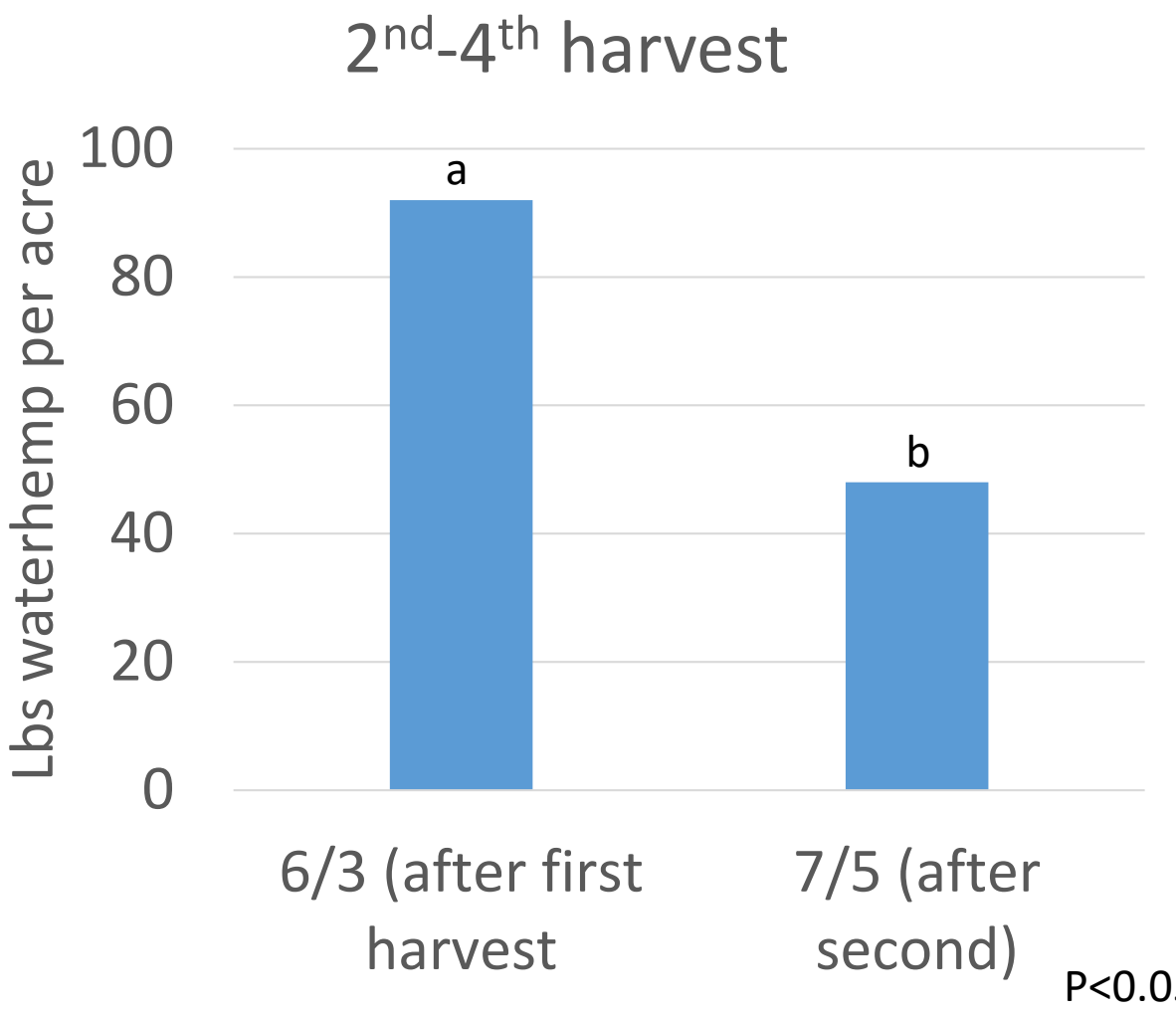
P<0.05

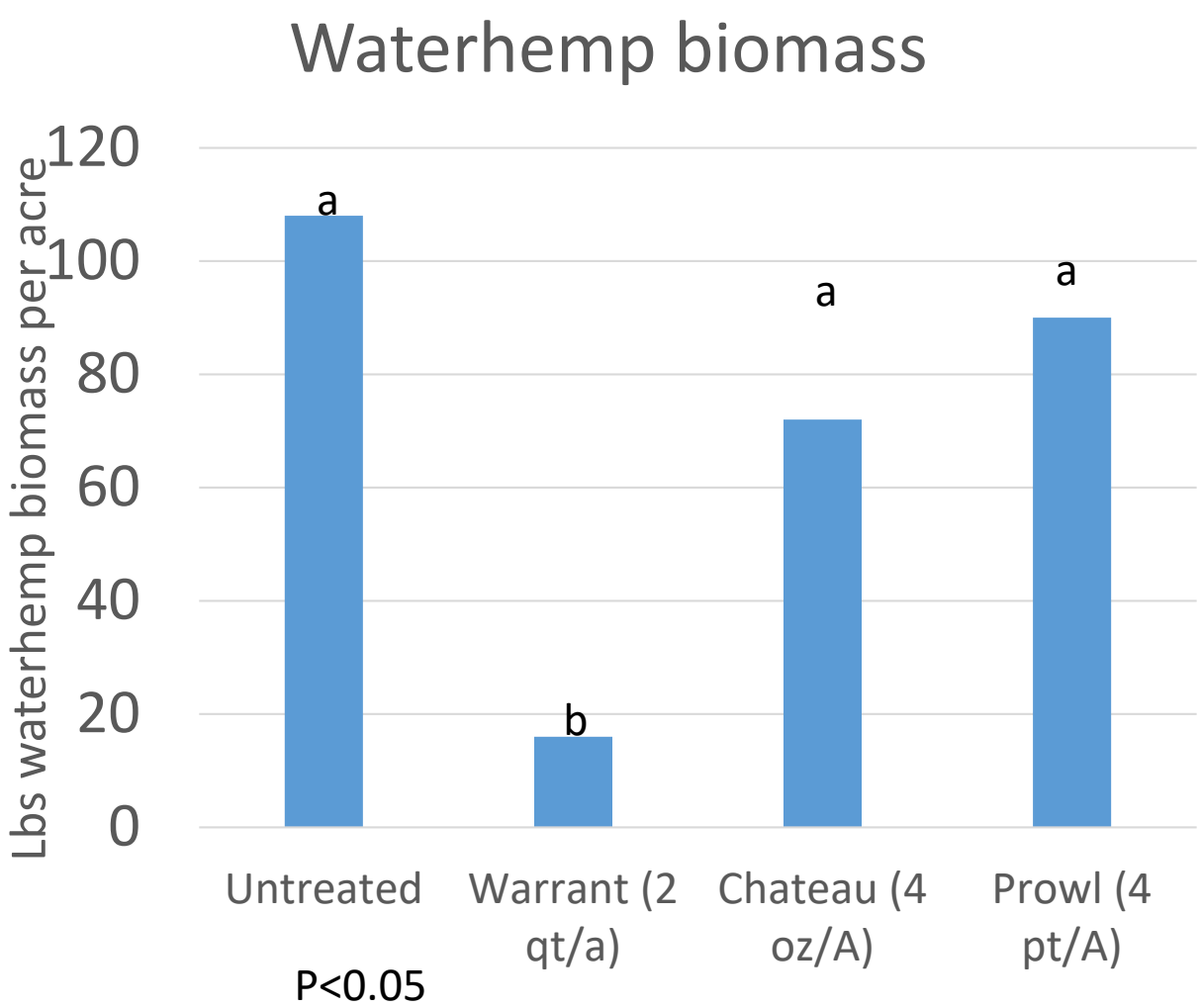
Waterhemp control in established alfalfa

- Do residual herbicides control waterhemp?
  - When is best time to apply
- Impact of waterhemp on alfalfa yield
- Emergence pattern of waterhemp in alfalfa
- Can alfalfa and herbicides prevent waterhemp seed production?

Results will be highlighted at Ag Classic in January 2020

Results from one site in Wisconsin





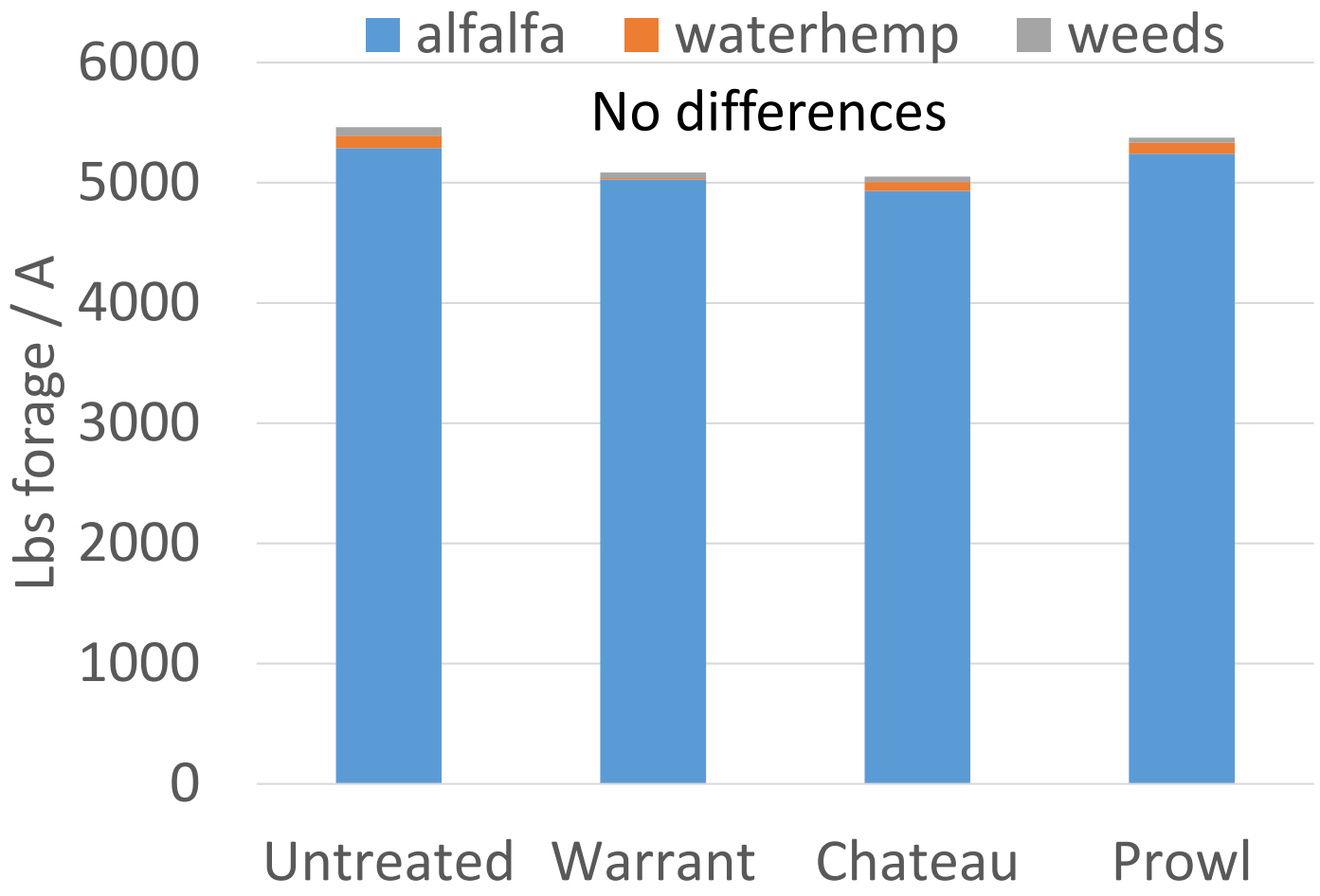
Waterhemp emergence in alfalfa in WI

76-85% mortality of seedlings by alfalfa competition/harvest

waterhemp per m2	144	98	33	9

Total forage biomass (2nd-4th harvests)

- Weeds were a minor component in total forage biomass
  - Waterhemp didn't appear until the 3rd harvest
    - Most in the 4th
  - < 5% of biomass harvested
- Seed production occurred even in treated plots



But seed is still produced, even with herbicide trts

But not until September……

Inter-seeding alfalfa into corn silage

Intensifying Wisconsin's forage production system

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UW Extension
University of Wisconsin-Extension

USDA United States Department of Agriculture

Forage Nutrition Environment
U.S. Dairy Forage Research Center

Interseeding alfalfa into corn silage

May

June

October

- Alfalfa planted in corn inter-rows
- Corn silage harvested
- Alfalfa re-grows as subsequent year’s crop

If done correctly

- No corn silage yield-loss
- Fully established alfalfa field
  - Production year alfalfa yields following year
  - Protect environment
    - Increased water infiltration
    - Reduced erosion/runoff
- Results in 15% increase in total forage over two years……
  - > 2 tons/A alfalfa increase
    - Averaged over 7 site/years

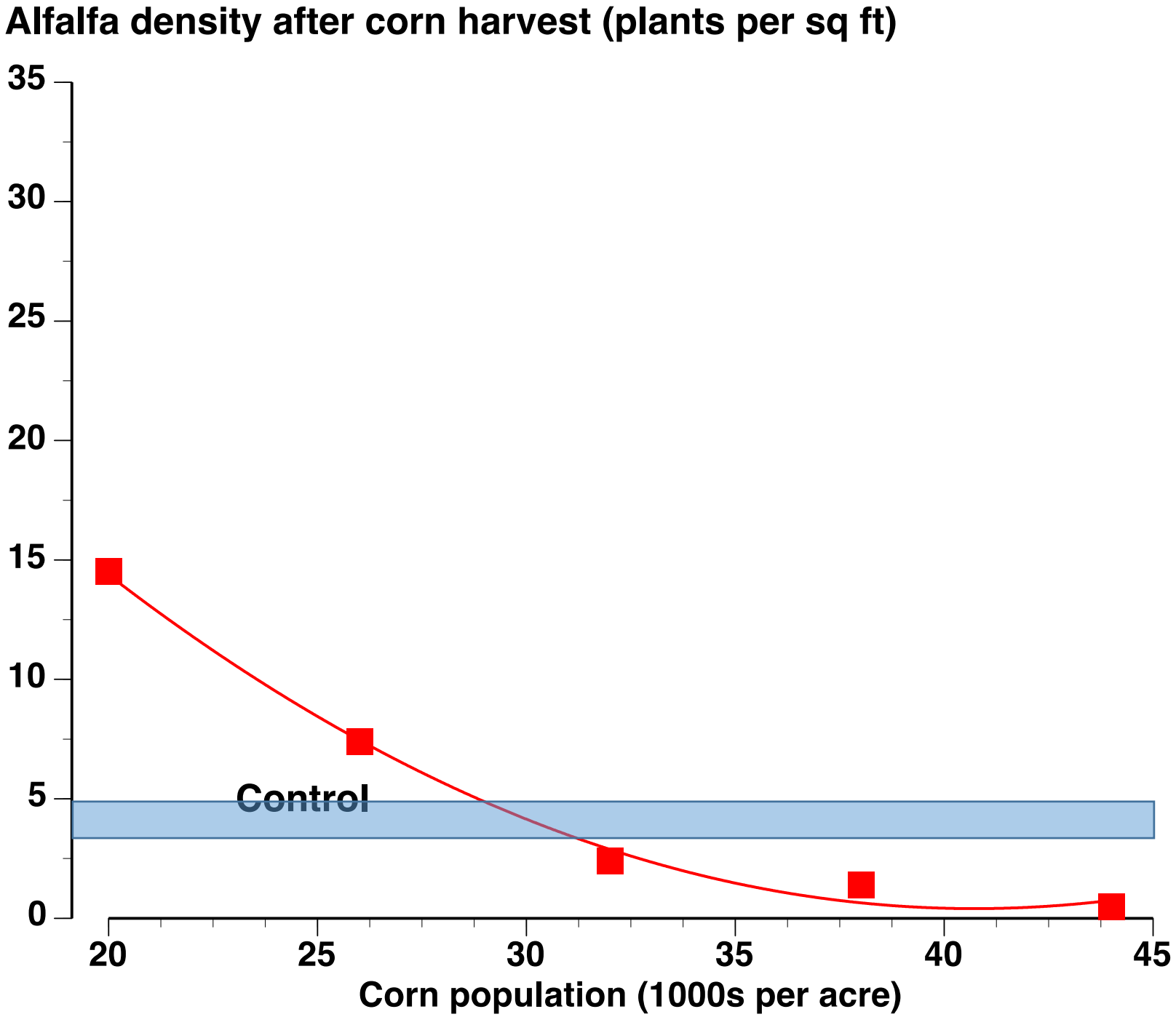
Will need to change management and/or increase inputs to improve success

Problem	Activity	Research
Corn density	Evaluating effects between 20-45K	2017-current
Corn competition	Planting timing corn vs alfalfa	2016-17, 2020
Nitrogen fertilization	Split vs at plant at various rates	2017-18
Alfalfa/Corn varieties	Screening current varieties for tolerance	2016-current
Alfalfa root development	Apply prohexadione (Kudos)	2011-current
Potato leaf hopper	Apply insecticide (Warrior II)	2017-current
Alfalfa foliar diseases	Apply fungicide (Priaxor)	2017-current
Wheel traffic	Currently evaluating impact	2017-current

Corn density can impact alfalfa establishment

High corn density reduces establishment

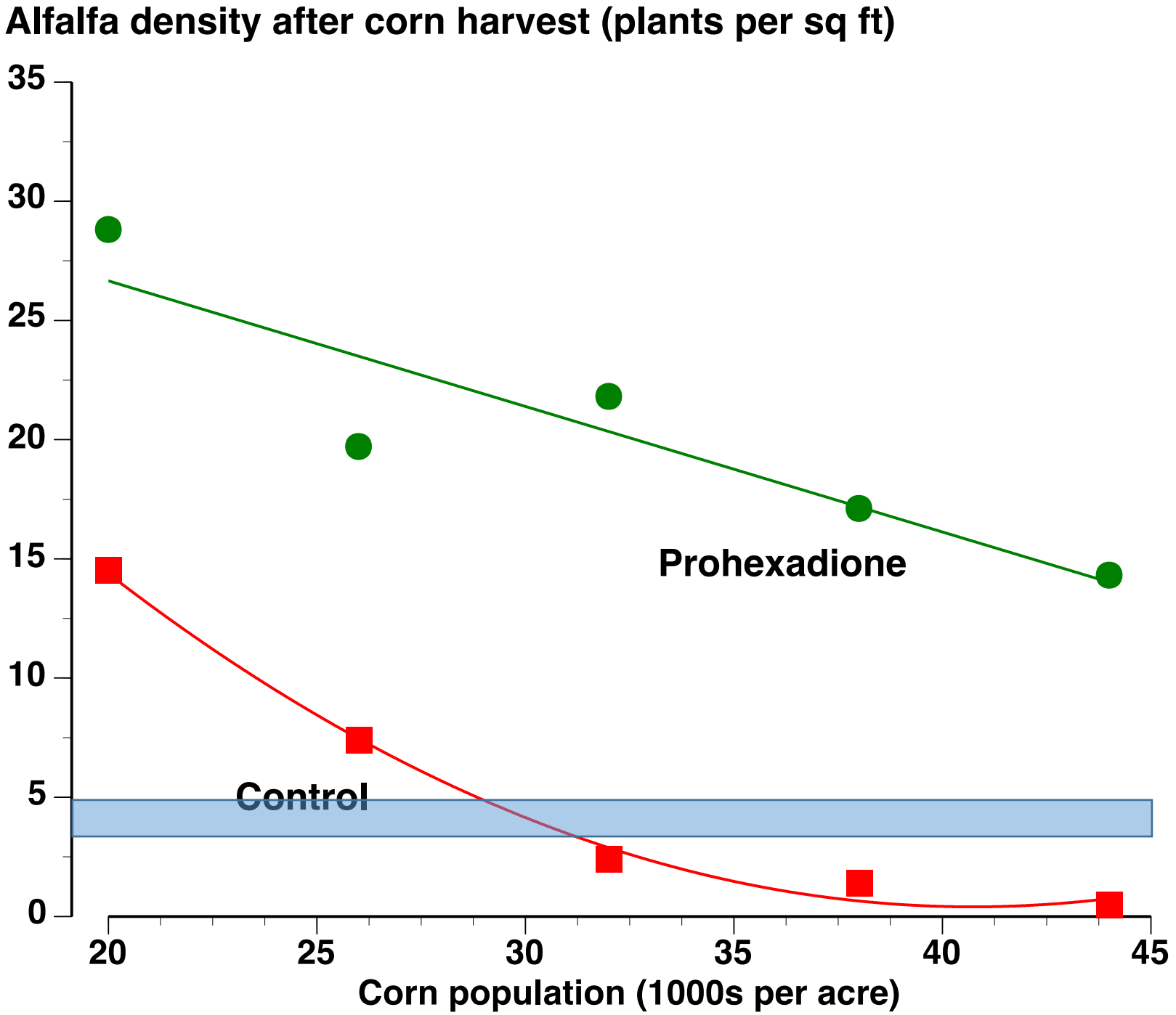
2017 study



Adding Prohexadione helps with alfalfa establishment

High corn density reduces establishment

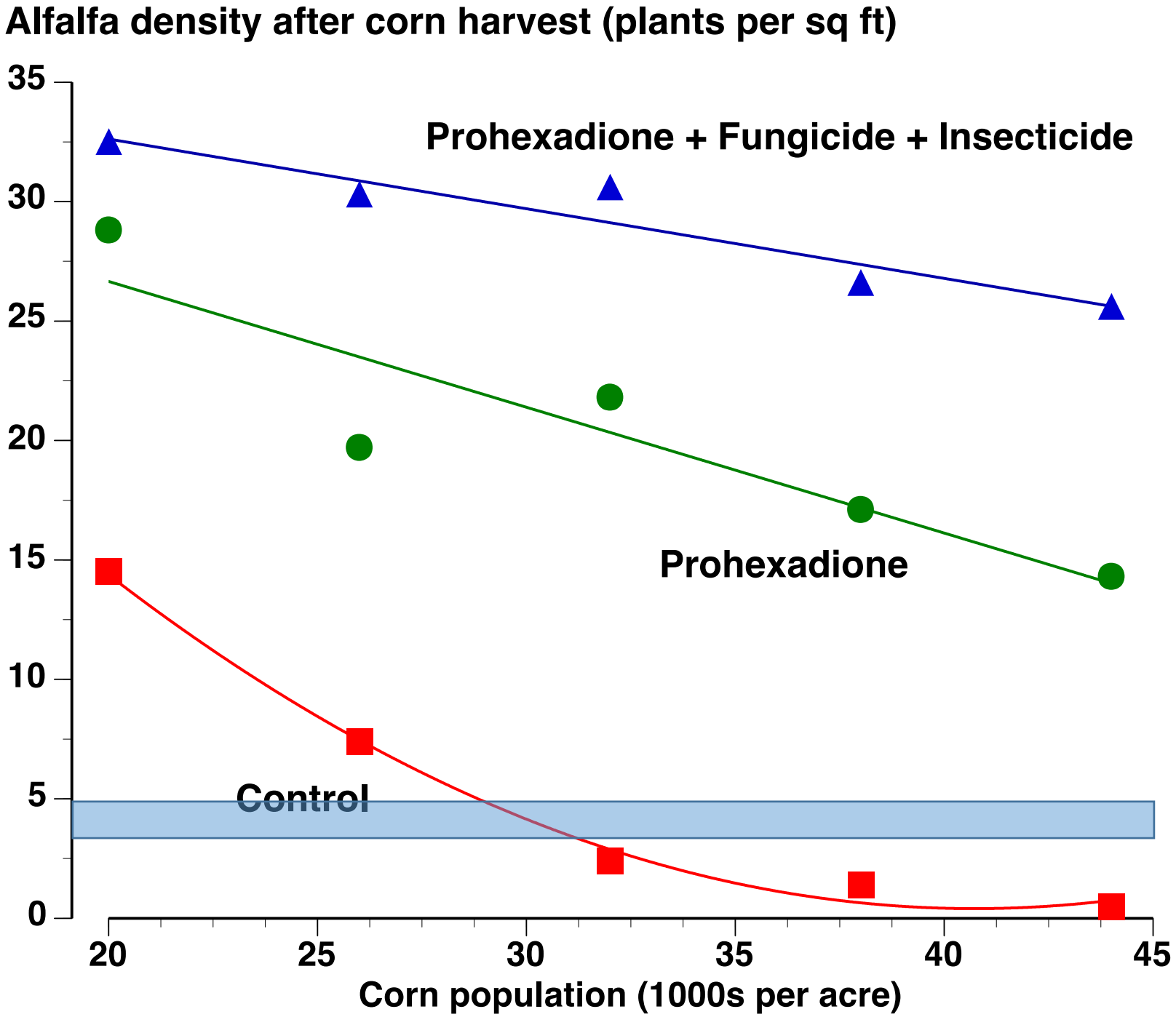
2017 study

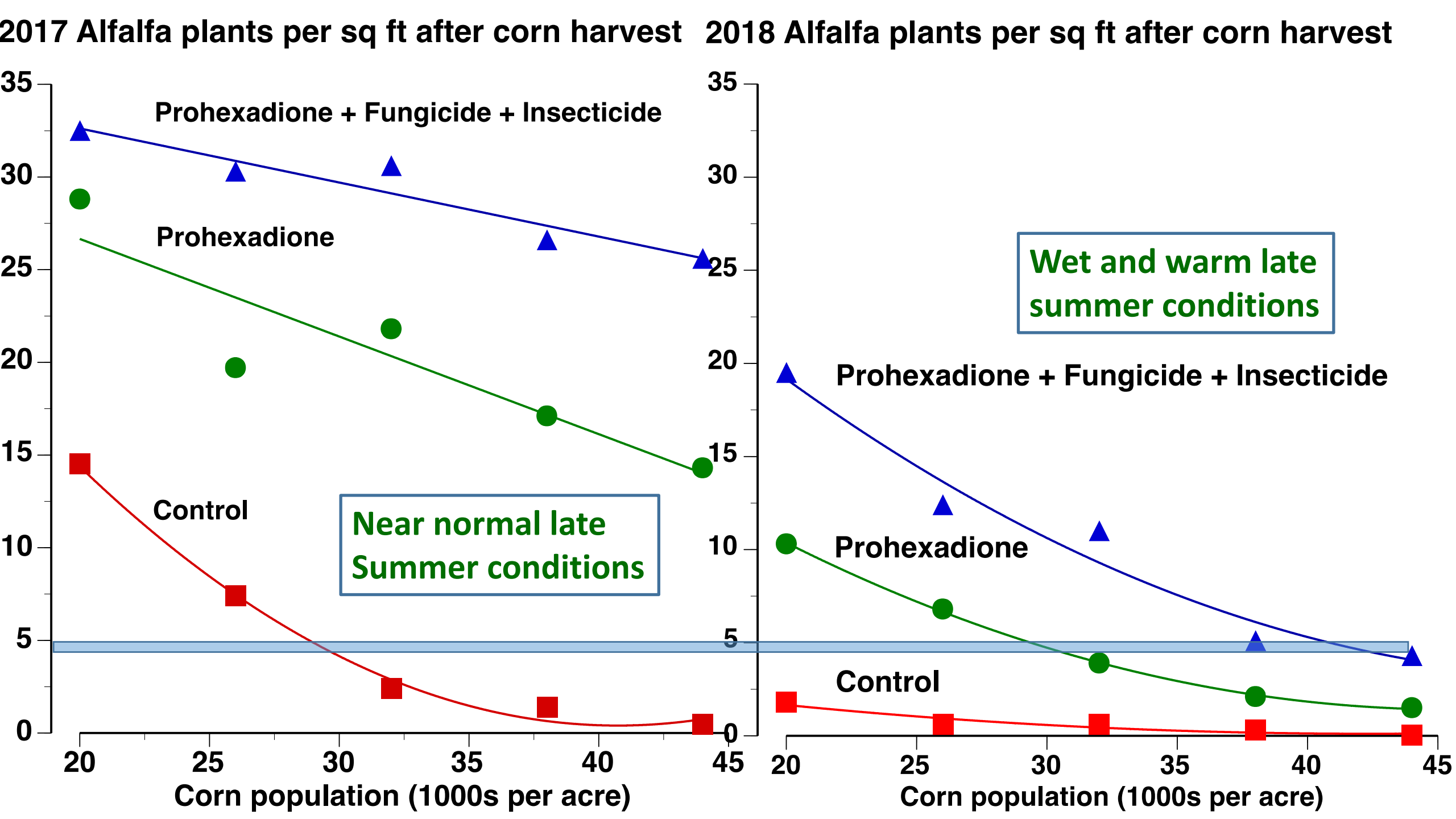


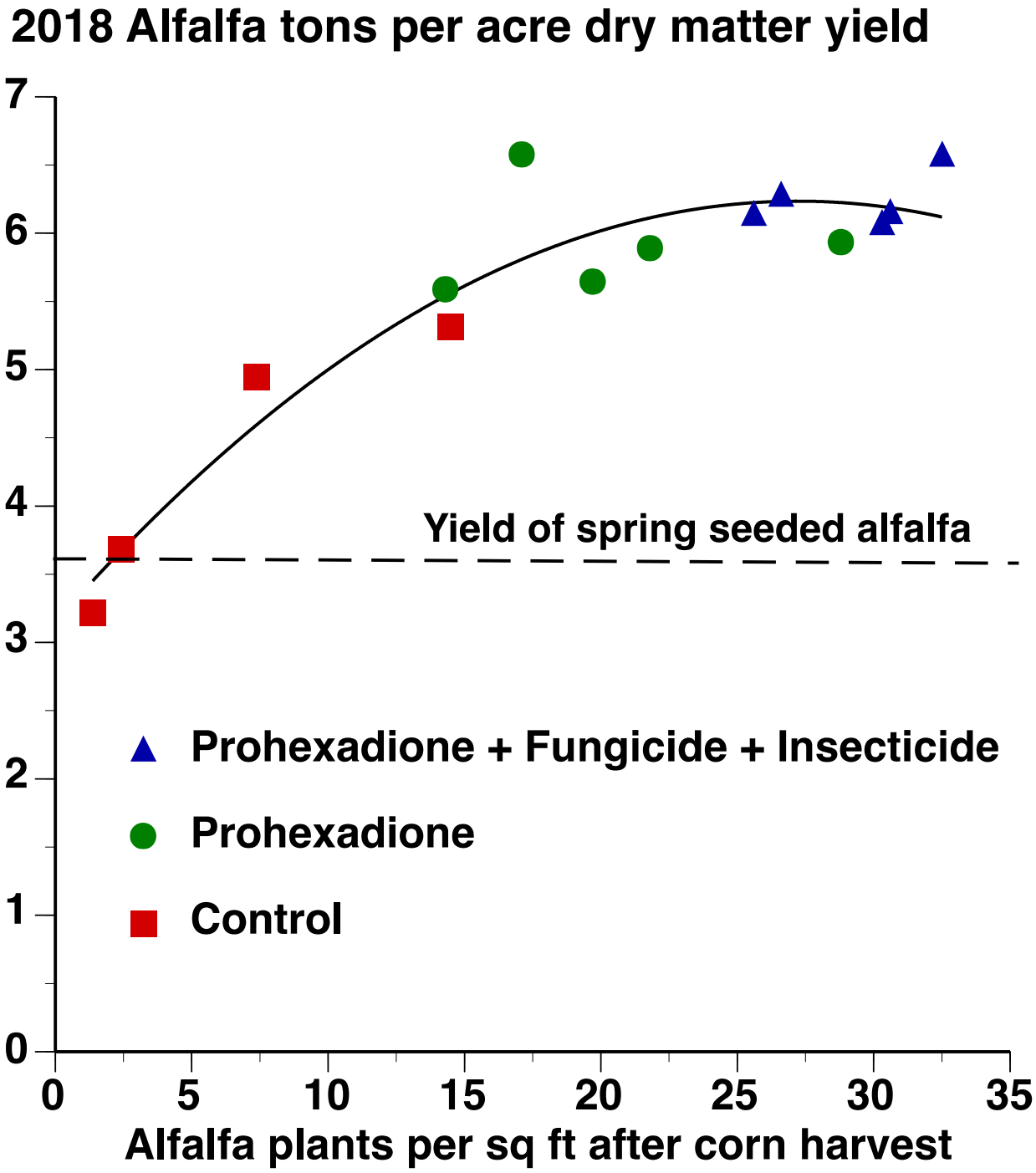
Adding Fungicides + Insecticides to PHD helps

High corn density reduces establishment

2017 study




2017 Alfalfa plants per sq ft after corn harvest
2018 Alfalfa plants per sq ft after corn harvest
Prohexadione + Fungicide + Insecticide
Prohexadione
Control
Near normal late
Summer conditions
Wet and warm late
summer conditions
0
5
10
15
20
25
30
35
20
25
30
35
40
45
Corn population (1000s per acre)



2019 alfalfa yield data will be summarized soon!

Pasture research

- New pasture herbicides (Corteva)
  - DuraCor (GF-3850)= Aminopyralid + Florpyrauxifen-benzul
    - Total broadleaf control
    - Will injure/remove legumes
    - Expect similar restrictions as milestone/grazonNext
      - Manure/plantback restrictions
    - Expected to be **released in 2020**
  - Different formulation for non-crop (GF-3886)
    - TerraVue (2020)

Pasture research

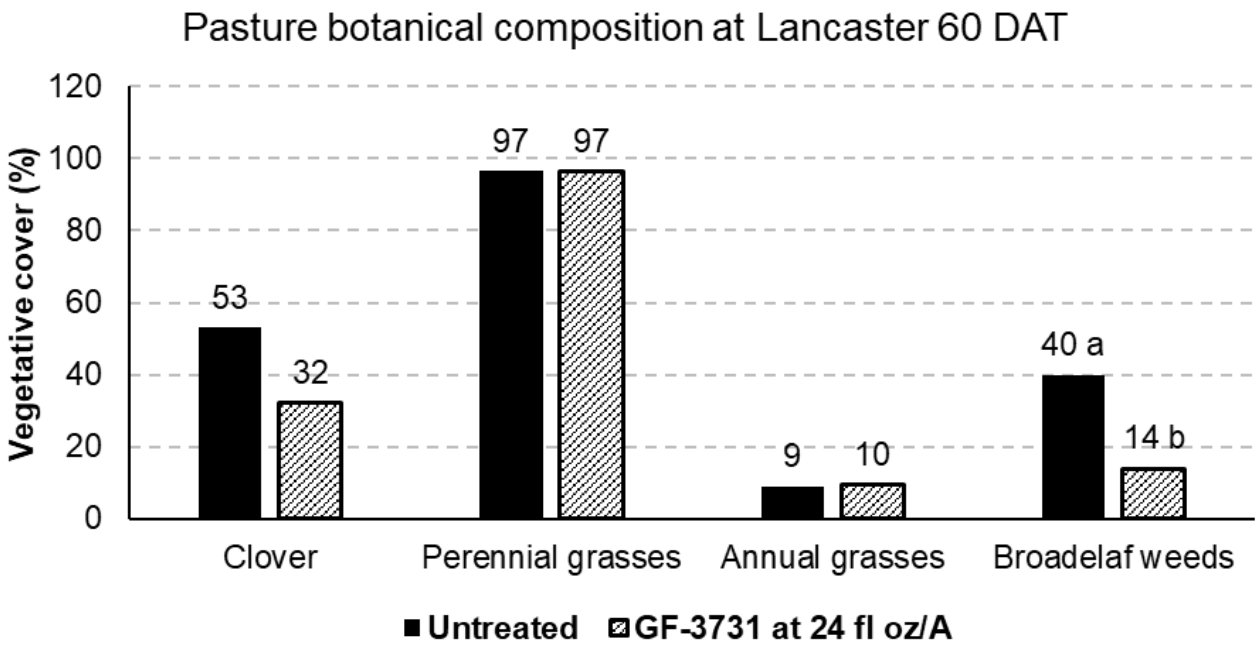
- New pasture herbicides (Corteva)
  - GF-3731
  - Florpyrauxifen-benzul + 2,4-D
  - Effective on annuals/biennials
  - Minor to no injury to **white clover**
  - Short residual
  - Exemptions on grazing restrictions

  - Available **in 2021?**

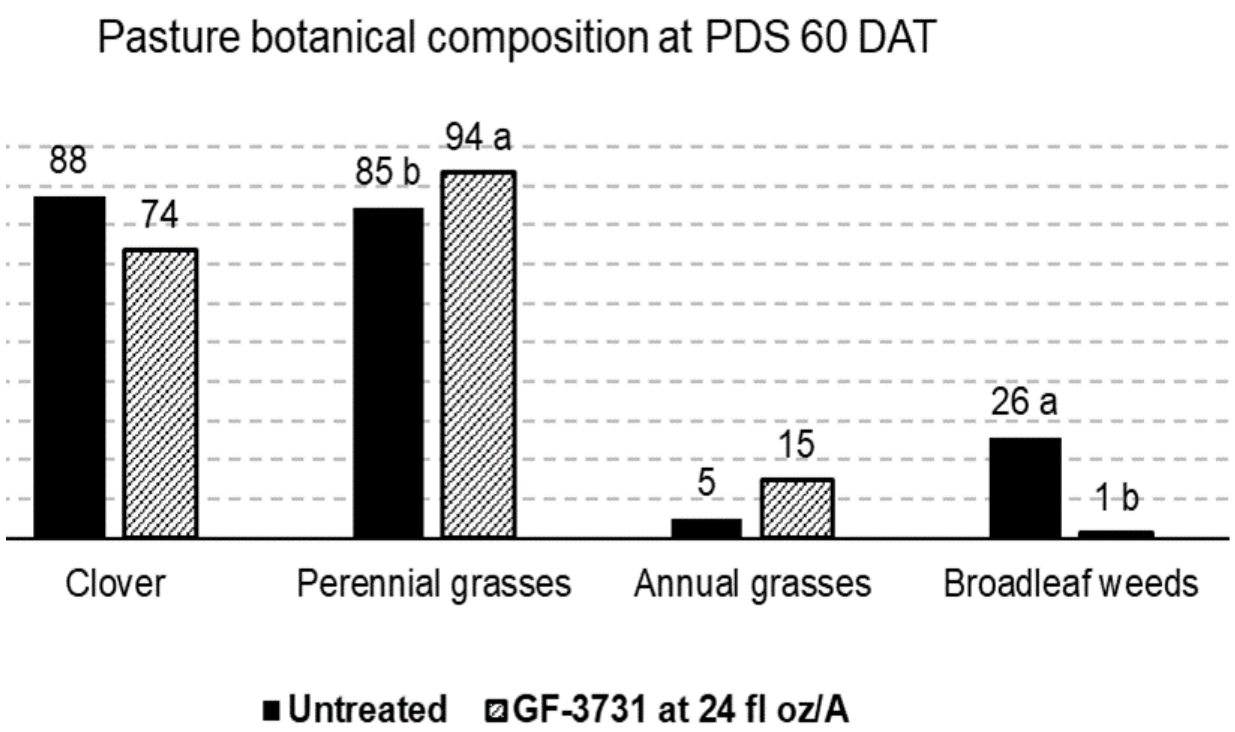
Results will be highlighted at Ag Classic in January 2020

Results from two field experiments in 2019

Clover species: red and white clover



Clover species: white clover



Major weed species: Burdock

Major weed species: plumeless thistle

Don’t forget about the indirect impacts of weeds in pastures <u>unused desirable forage</u>

- Reduce impacts from spiny weeds by
  - Graze when plants aren’t spiny
  - Mow to prevent avoidance
  - Increase stocking density to eat/stomp plant
  - Spray a herbicide to remove weed
    - Spot vs broadcast