Inter-seeding alfalfa into corn silage

Intensifying Wisconsin's forage production system

Extension
UNIVERSITY OF WISCONSIN–MADISON

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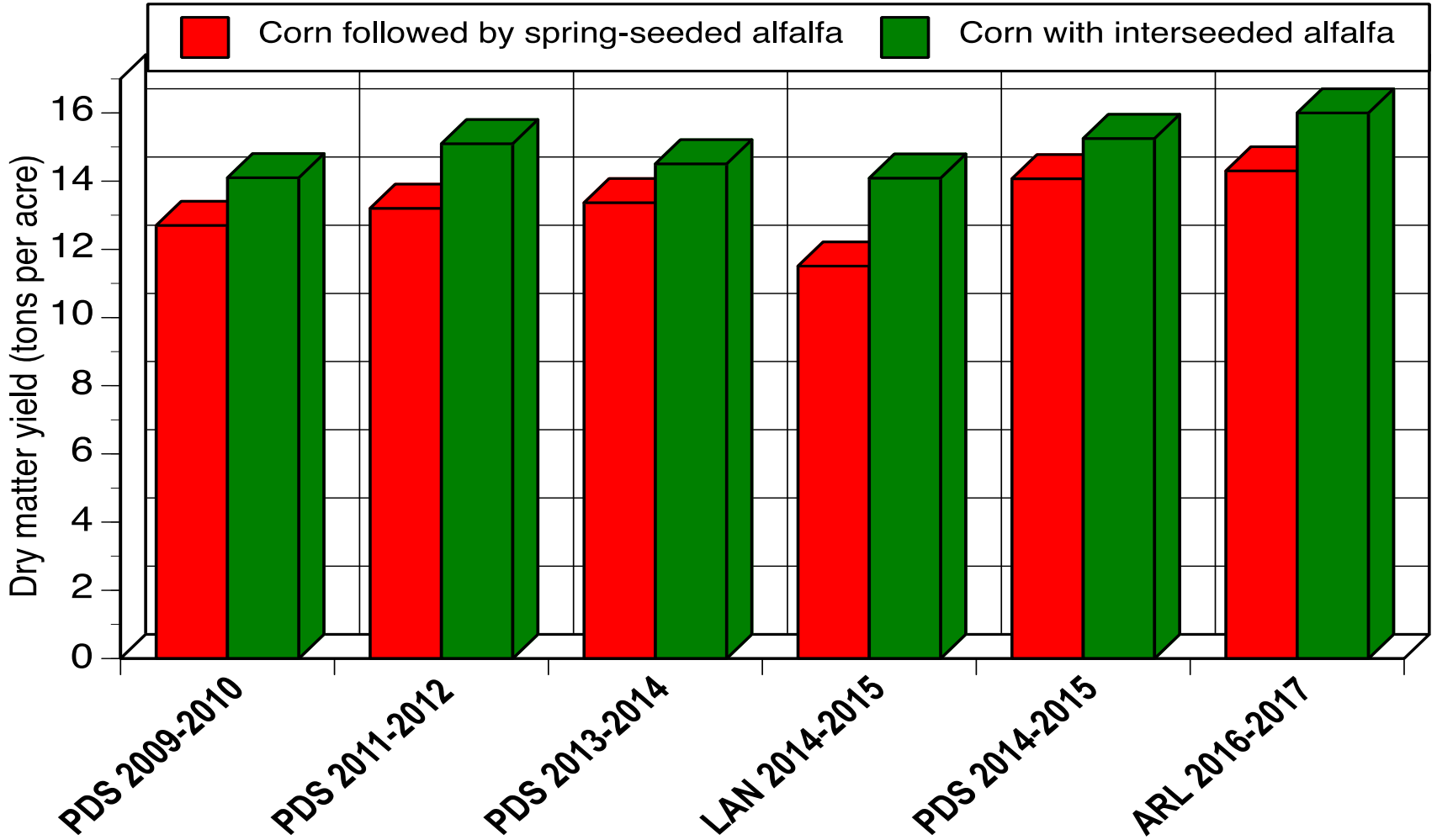
When successful alfalfa interseeding increases total yields of corn plus first year alfalfa



12% increase
= 1.6 tons per acre

But we get failed alfalfa establishment

Researching how we can minimize failure

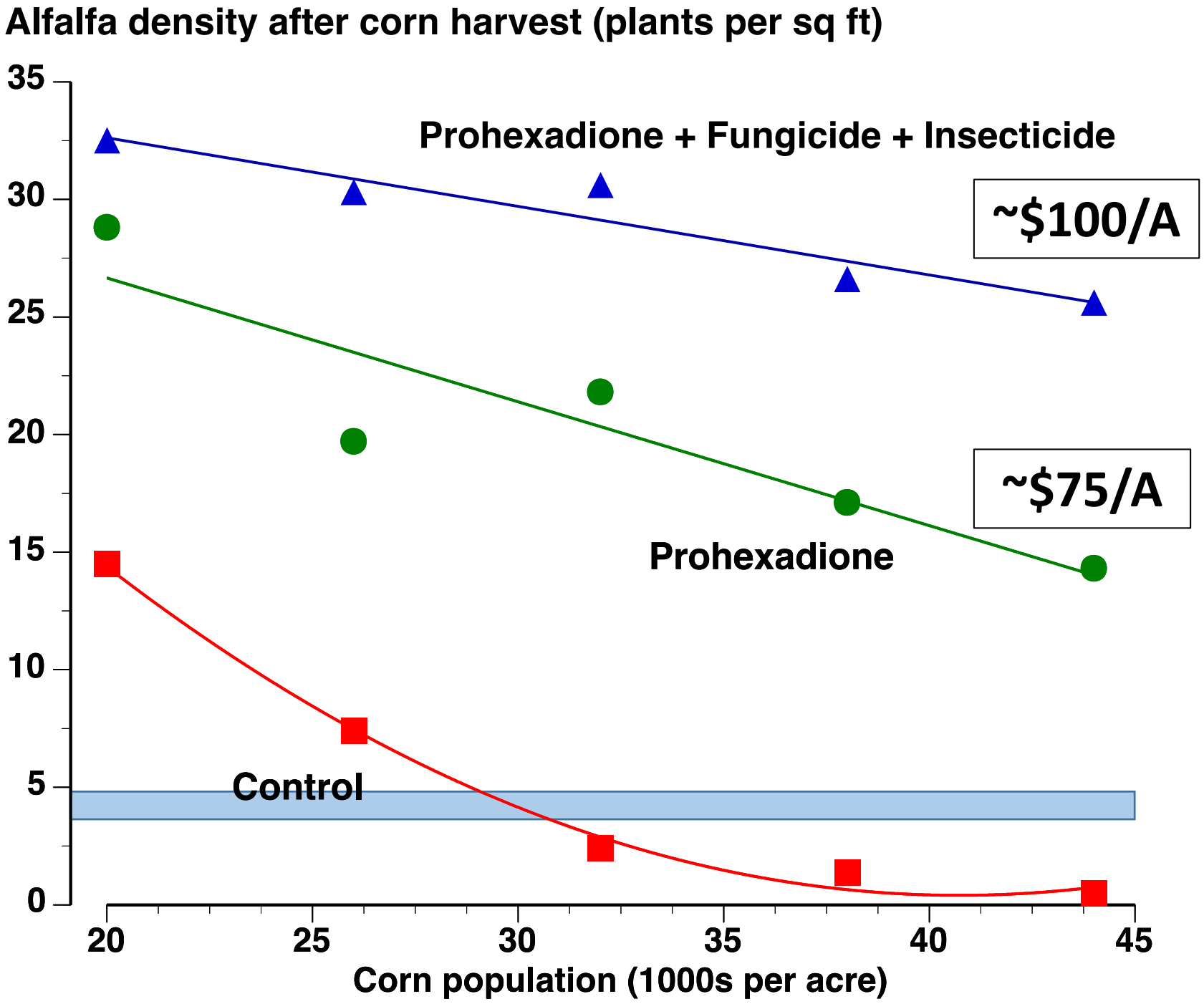
- What impacts establishment?
- Do added inputs make this system too expensive?

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

Adding Fungicides + Insecticides to PHD helps

High corn density reduces establishment

2017 study



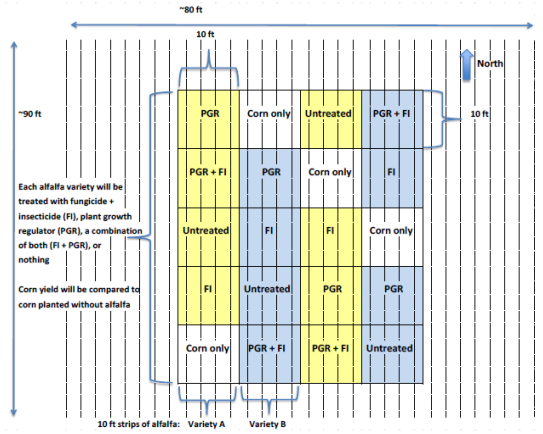
Can we reduce the cost by applying all at once?

- Current recommendation (~$100/A)
  - Kudos 26oz/a in middle of June
  - Priaxor 4 fl oz/A + Warrior II 1 oz/a applied 2 weeks later
- Can we apply all at once in June?
  - Initial data suggests YES
- Can we reduce Kudos rate if apply fungicide and insecticide
  - Initial data suggests YES (< ~$50/a)

Looking for cooperating farms

Interseeding Corn and Alfalfa On-farm Research Project

Our research group is cooperating with farmers to establish on-farm experiments at three farms in each of four states (ID, MI, PA, WI). On each farm two alfalfa varieties will be interseeded into corn silage, and the effects of different plant protection chemicals will be tested. As illustrated below, the experiment at each farm will be carried out on twenty small plots (10' x 20'). Each treatment will be applied to two plots in the experimental area to test the consistency of alfalfa and corn responses to various plant protection chemicals. The experiment will be surrounded on all sides by 20' corn borders, so that the total area required on each farm will be approximately 1/4 of an acre.



Farmers participating in this project will:

- Identify an appropriate field to establish interseeded alfalfa that meets project criteria: moderately well-drained to well-drained; pH ≥ 6.5; optimal levels of P, K, S, and B for alfalfa establishment; limited crop residues.
- Share the management history of the field including crop rotation used, soil test results, fertilizer and liming rates for the last 3 years, and herbicides used the prior two years.
- Plant silage corn on ~1/4 acre: short to mid-season hybrid planted in the recommended planting window in 30" rows at a density between 25K and 40K seeds per acre. This area can be located near the edge of a larger corn field.
- Fertilize corn and interseeded alfalfa according to typical practices for corn silage. Manure or chemical fertilizer application rates and timings must be recorded.
- Harvest corn silage from borders areas at typical harvest timing (at least 3 weeks before first frost date).
- Not permit herbicide applications in the experimental area or traffic through plots after planting alfalfa.

Researchers will:

- Interseed 2 alfalfa varieties between corn planting and the VE growth stage of corn.
- Provide weed control (PRE application of Warrant, POST of Buctril (if needed) in the ¼ acre area
- Apply plant protection treatments approximately 5 and 8 weeks after alfalfa interseeding.
- Take monthly measurements of plants and soil from May through late October.

As several agrichemical products that will be utilized in this research (Warrant herbicide, Kudos plant growth regulator) are not yet registered for use in corn and alfalfa, scientists will harvest and properly discard corn and terminate alfalfa stands in late October at the end of the study. Corn from the untreated 20' border areas can be utilized by cooperators. Cooperators will receive a modest honorarium ($200) from the University of Wisconsin to help offset costs.