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2015 Update Mtg: Weed Research Update

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Weed Research Update

Field Season 2014

Katie Ghantous and Hilary Sandler
UMass Cranberry Station

Weed Problems

Most grower questions and complaints about:

- Poverty grass



- Poison Ivy



- Dodder



- Moss



Poison Ivy Spot Treatment



Poison Ivy

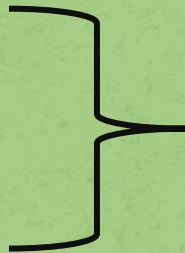
Year 2 of study initiated in 2013

- Grower report - control of PI by spot treating patches with tank mix

1.5 oz Callisto

1.5 oz Poast

1.5 oz Crop oil



Gallon Water

- Backpack sprayer – spray to wet
- 4 grower sites - Large plots 4 x 4 m

Poison Ivy Treatments

“Early”

Treated late May + mid-June

Treated 2013 + 2014

Treated 2013 Only

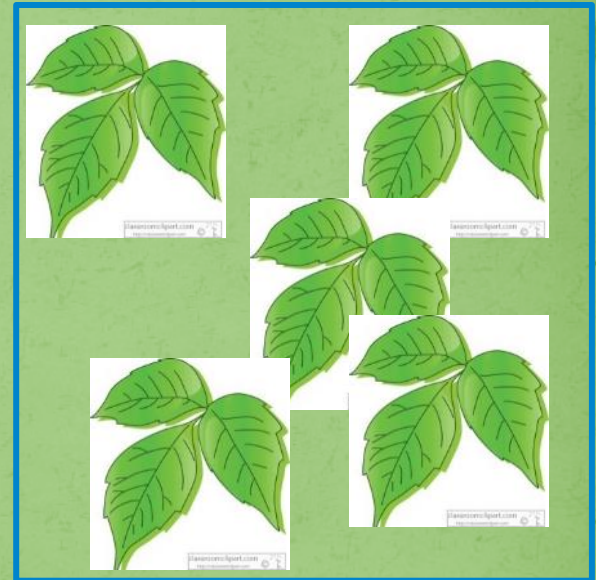
“Late”

Treated mid-June + early July

Treated 2013 + 2014

Treated 2013 Only

Untreated



Poison Ivy Results

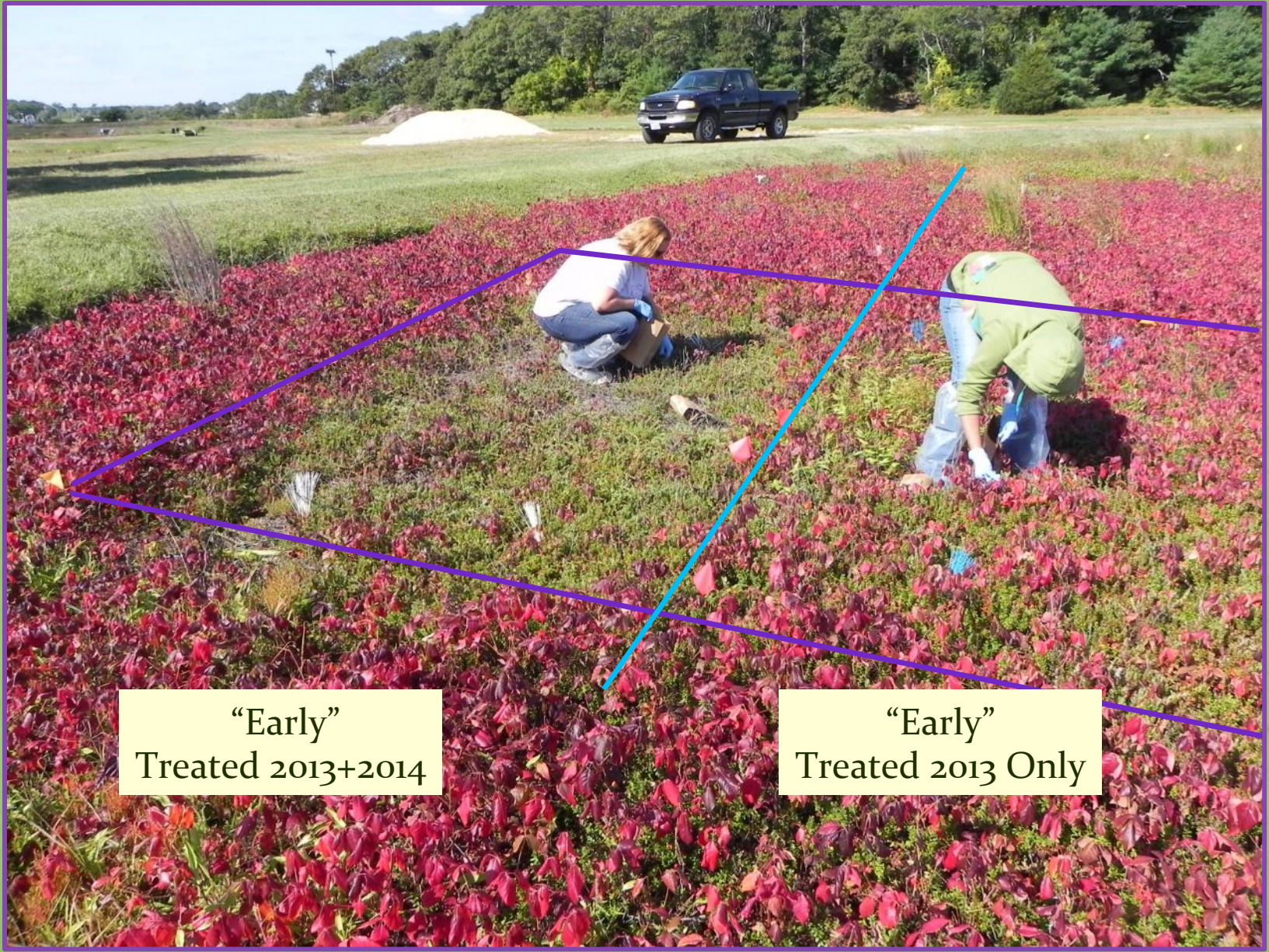
% PI Cover

% Cranberry Cover

Cranberry fruit

	0 m	0.5 m	1 m	1.5 m	2 m
0 m					
0.5 m					
1 m					
1.5 m					
2 m					

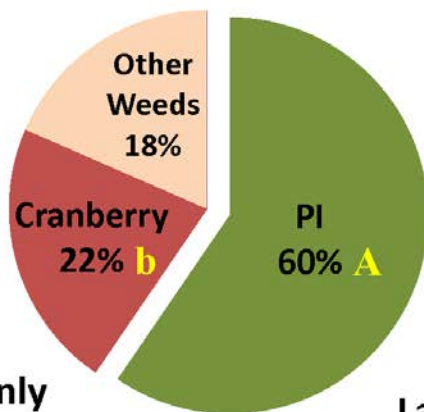




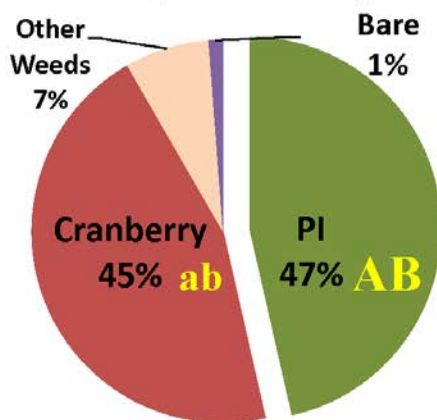
“Early”
Treated 2013+2014

“Early”
Treated 2013 Only

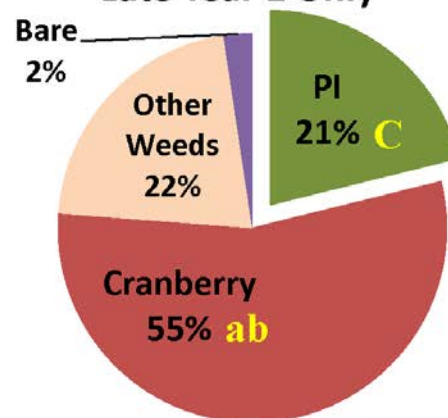
Untreated



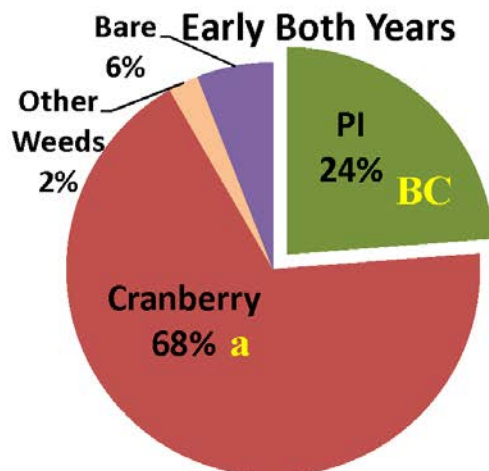
Early Year 1 Only



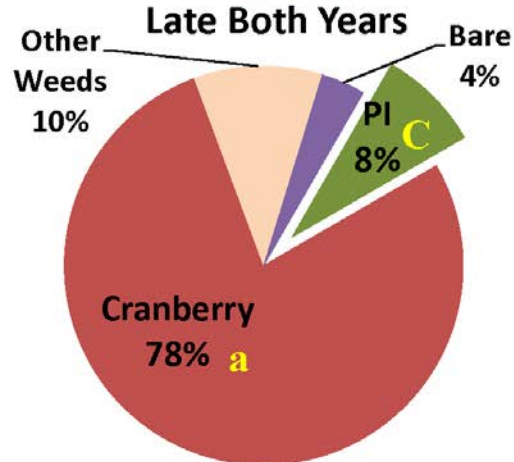
Late Year 1 Only



Early Both Years



Late Both Years



Why does the spot treatment work?

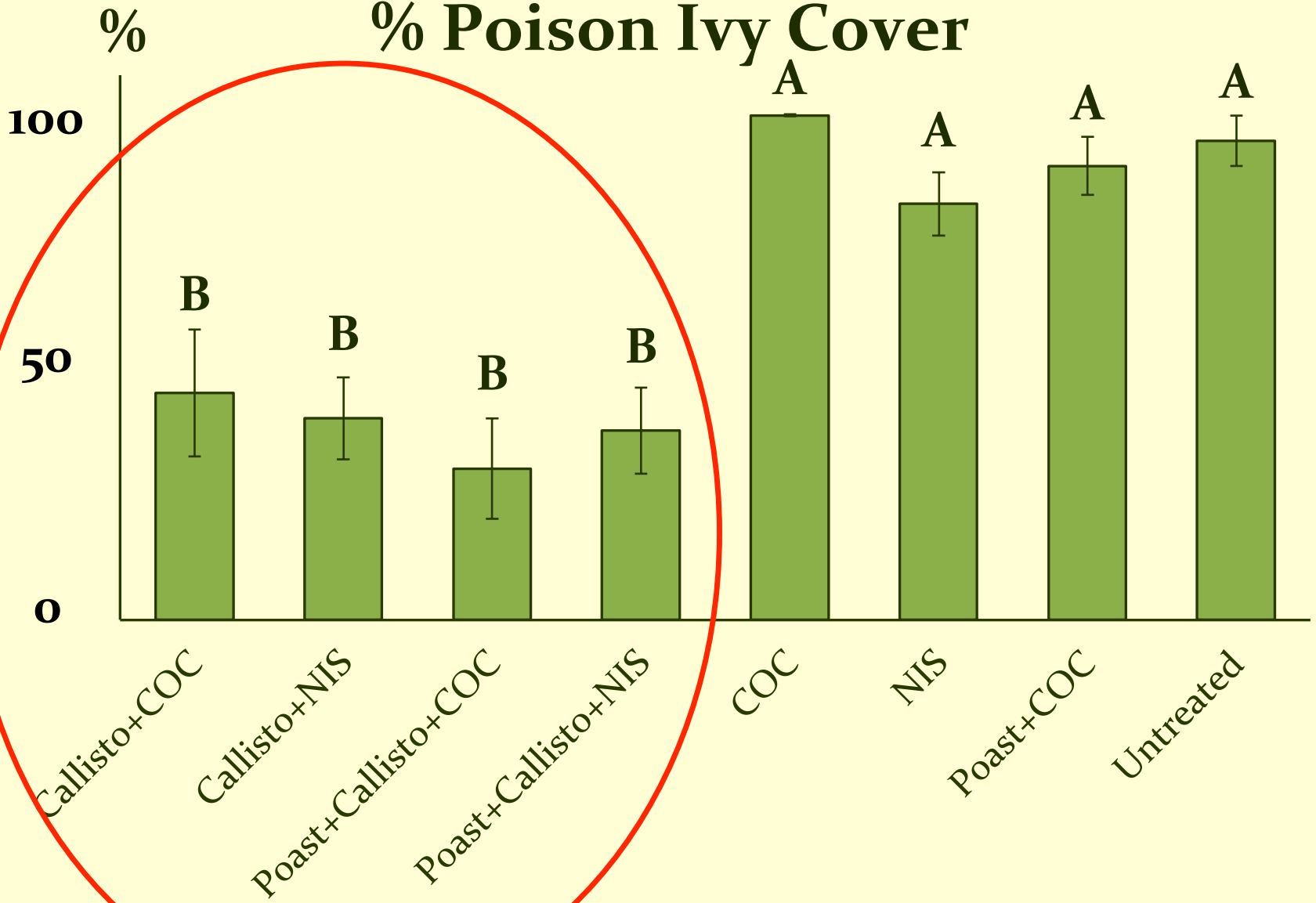
1. Crop oil concentrate (COC)
2. Nonionic surfactant (NIS)
3. Poast + COC
4. Callisto + COC
5. Callisto + NIS
6. Callisto + Poast + NIS
7. Callisto + Poast + COC
8. Untreated



*All herbicides and COC at 1.5 oz/gallon, NIS at 0.25% v:v

- 1 m plots, treated "Early" late May + mid-June

% Poison Ivy Cover



Callisto has an 8 oz/Acre Maximum!

Callisto can enter plants by both foliage and roots

- Best mode of absorption may vary by weed species

Chemigation

- 8oz/acre delivered in 400+ gallons of water
- Dilute, available to plant roots as well as foliage
- Some studies show best for weed control (i.e. nutsedge)

Spot treating at experimental rate

- 8oz/acre delivered in 5.3 gallons of water
- Much more concentrated!
- Better foliar absorption
- Can prob use less with same results
 - i.e. 1 oz/gal or even less, we plan to test lower rates in the future

DO NOT EXCEED 8oz per acre !!!! (max. 2 applications)

- If you chemigate 8oz per acre 2x, you can not also spot treat
 - Chemigate 2x OR
 - Can chemigate 1x, spot treat 1x OR
 - Can spot treat twice

Dodder Spot Treatments

Callisto by chemigation for dodder (4oz or 8oz/A rate)

- Most growers who have used Callisto for dodder control report no satisfactory control of dodder
- Typically, the dodder shows signs of whitening but then recovers

Test the more concentrated tank mix on dodder patches

1. Callisto + Poast + COC (1.5oz each/gallon)
2. Callisto + COC (1.5oz each/gallon)



- Treatments

1. 1x early - prior to dodder flowering (7/7/14)
 2. 1x late – while dodder was flowering (7/29/14)
 3. 2x - (7/7/14 and 3 weeks later on 7/29/14)
 4. Untreated
- Dodder seeds and cranberry fruit were collected from a 1 ft² area within each plot on 9/24/14

2 Weeks after Pre-flowering Treatment



2 Weeks after Pre-flowering Treatment



6 Weeks after Pre-flowering Treatment



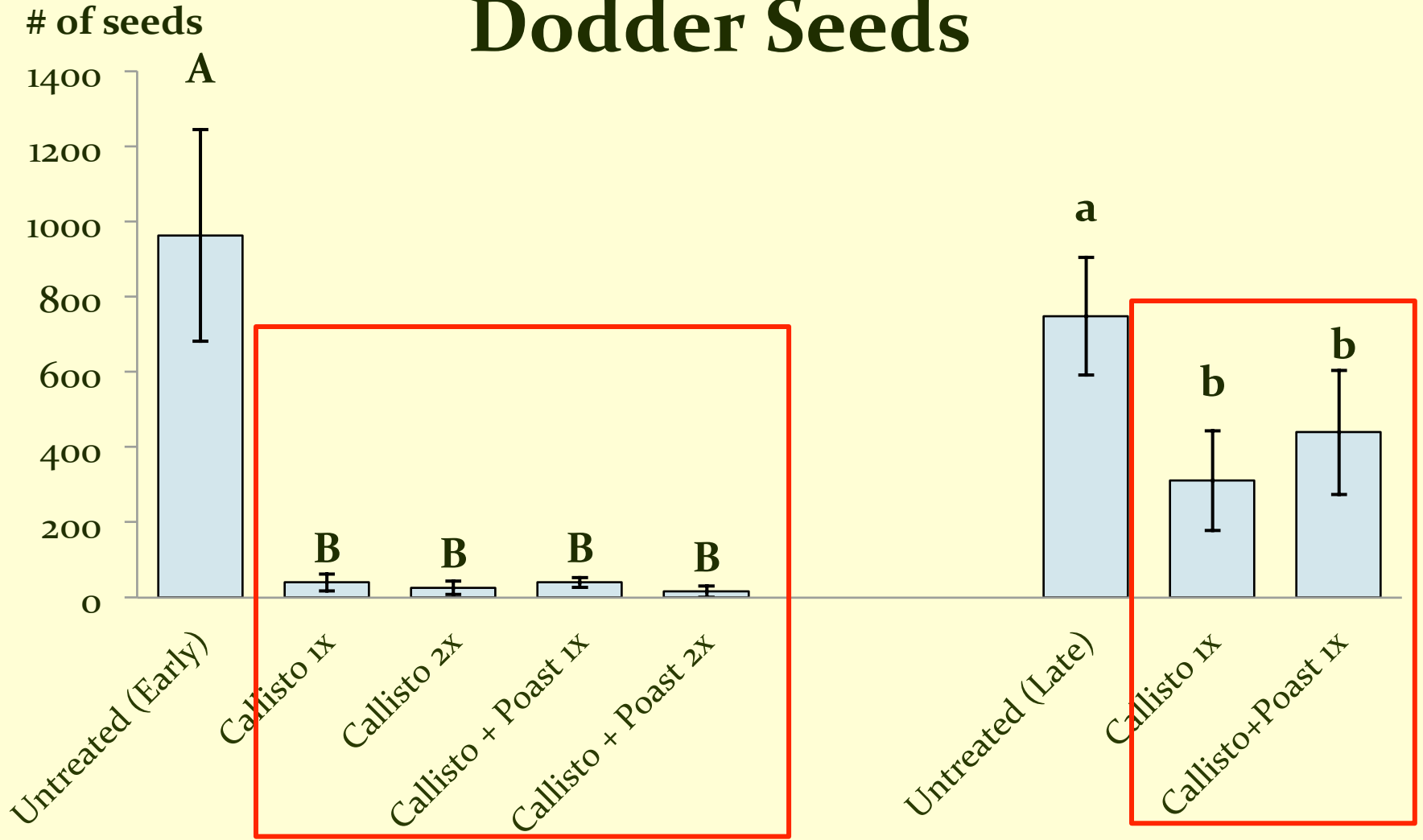
Flowering Treatment – 3 WAT



Flowering Treatment – 3 WAT



Dodder Seeds



Treated pre-flowering

Treated at flowering

Treatment

No differences in fruit

Split application, increased rate

Grower's typical practice

- Single 40# application based on scouting
 - 7-10 days after seedlings found



1st Application - May 7, 2014

- Grower applied 40# to property

2nd Application - May 21, 2014

- Test strips
 - +20 # (total of 60#)
 - +40# (total of 80#)



7/23/14 - 3 WAT



40# 5/7 +
40# 5/21

40# 5/7

40# 5/7 +
20# 5/21

Why was control improved?

Increase rate or splitting up into 2 apps?

- Need to do more testing!
- More controlled study
 - Single rates of 40#, 60#, and 80#
 - Those same rates split
 - Replicated plots
- If you aren't getting control at 40#, increase your rate

Casoron for dodder control – other projects

Testing impact of sanding before Casoron on dodder germination

- Casoron attaches to soil particles
- Without sanding, most dodder seeds are at or near surface
- After sanding, dodder seeds under sand
 - Need to pass through sand to emerge
 - May increase seedling contact with herbicide and improve control

Variability in Casoron susceptibility

- Does dodder respond differently at different farms?

Other projects

Continued screening of unregistered herbicides for suitability in cranberry

- Dodder
- Other weeds

Continued screening of moss control products

- Moss killer product – work to establish label recommendations and show crop safety
- Explore chemigation of iron sulfate (used in other cranberry regions)

A photograph of a grassy field. In the foreground, there is a dense patch of tall, green grass with some brownish seed heads. The middle ground shows a vast, open field of shorter green grass. In the background, there is a line of trees and a slight rise in the land. The word "Questions?" is written in white text across the upper part of the image.

Questions?