

Wild Blueberry Pest Management Update



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Pre-emergent herbicide combinations with Sinbar for weed control in wild blueberry fields 2013



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Pre-emergence herbicides

OBJECTIVES

When a single herbicide is used, such as Velpar or Velossa, for decades, resistance and weed shifts occur.

There is a need to develop alternatives with different modes of action to alternate and reduce resistance.

Continue to assess the effects of pre-emergence herbicides on wild blueberry cover, phytotoxicity and broadleaf and grass weed cover.



Pre-emergence herbicides 2011-12

Photo 1A-B. Sinbar only treatment (A. Block 4) in early July 2012 from 2011 application;
Sinbar + Matrix treatment (B. Block 1) in mid August 2012.

Past Studies



Location: BBHF MAFES in Jonesboro, ME

Design: RCB Split Block Design with 6 reps

Treatment/Rates:

1. untreated check
2. Sinbar WDG 1 lb/a (Sinbar-1)
3. Sinbar 2 lb/a (Sinbar-2)
4. Sinbar 1 lb/a + Direx 4L 1 lb/a (Sinbar-1+Direx-1)
5. Sinbar 2 lb/a + Direx 2 lb/a (Sinbar-2+Direx-2)
6. Sinbar 1 lb/a + Matrix 2 oz/a (Sinbar-1+Matrix-2)
7. Sinbar 1 lb/a + Matrix 4 oz/a (Sinbar-1+Matrix-4)

Split

8. Velpar L 1 lb/a (Velpar-1)
9. Velpar L 2 lb/a (Velpar-2)

Timing: Applied on 21 May 2013

Evaluations: evaluated in June and August, Blueberry, Broadleaf, Grass

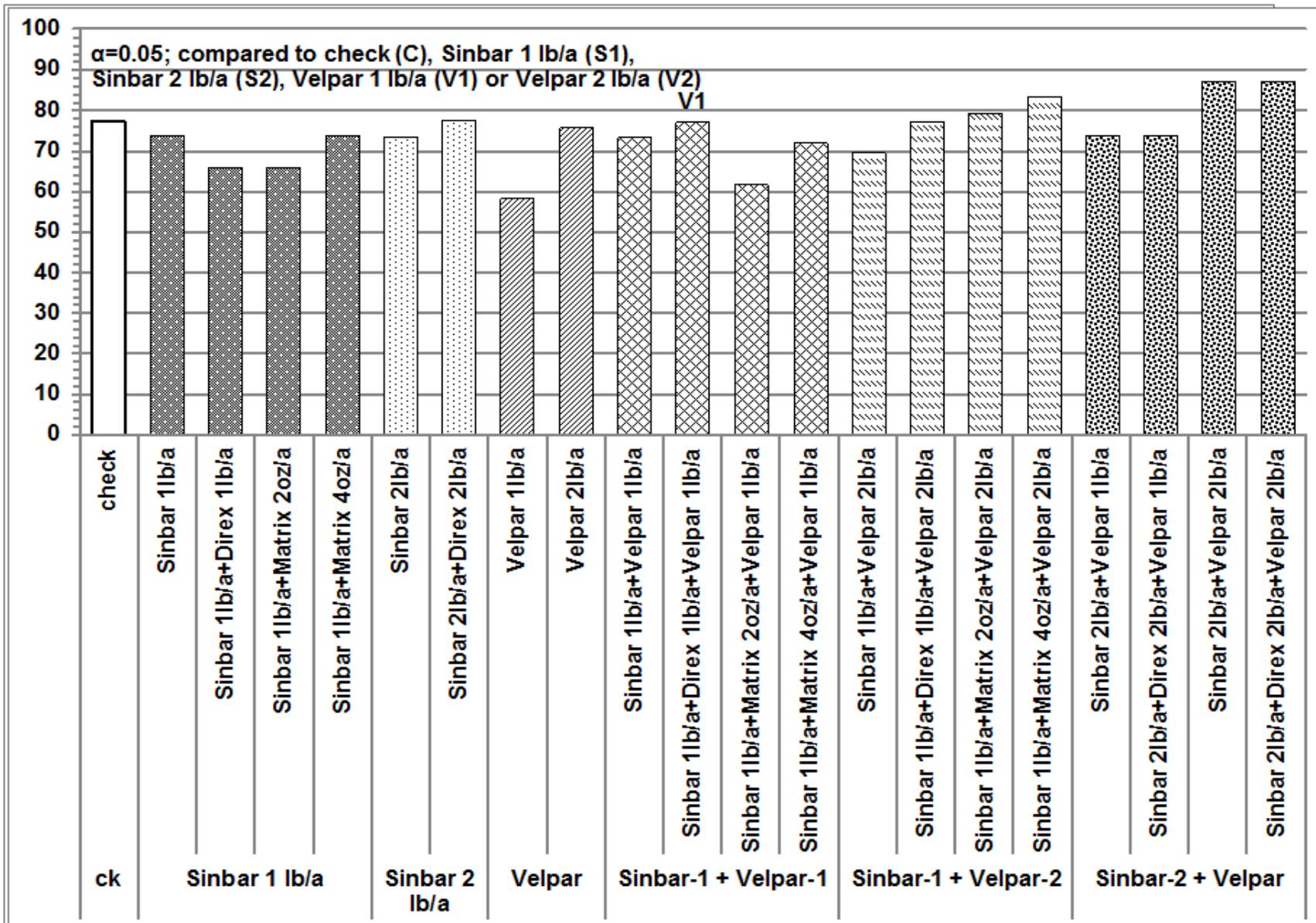
Analysis: nonparametric median two-sample exact test with $\alpha=0.05$



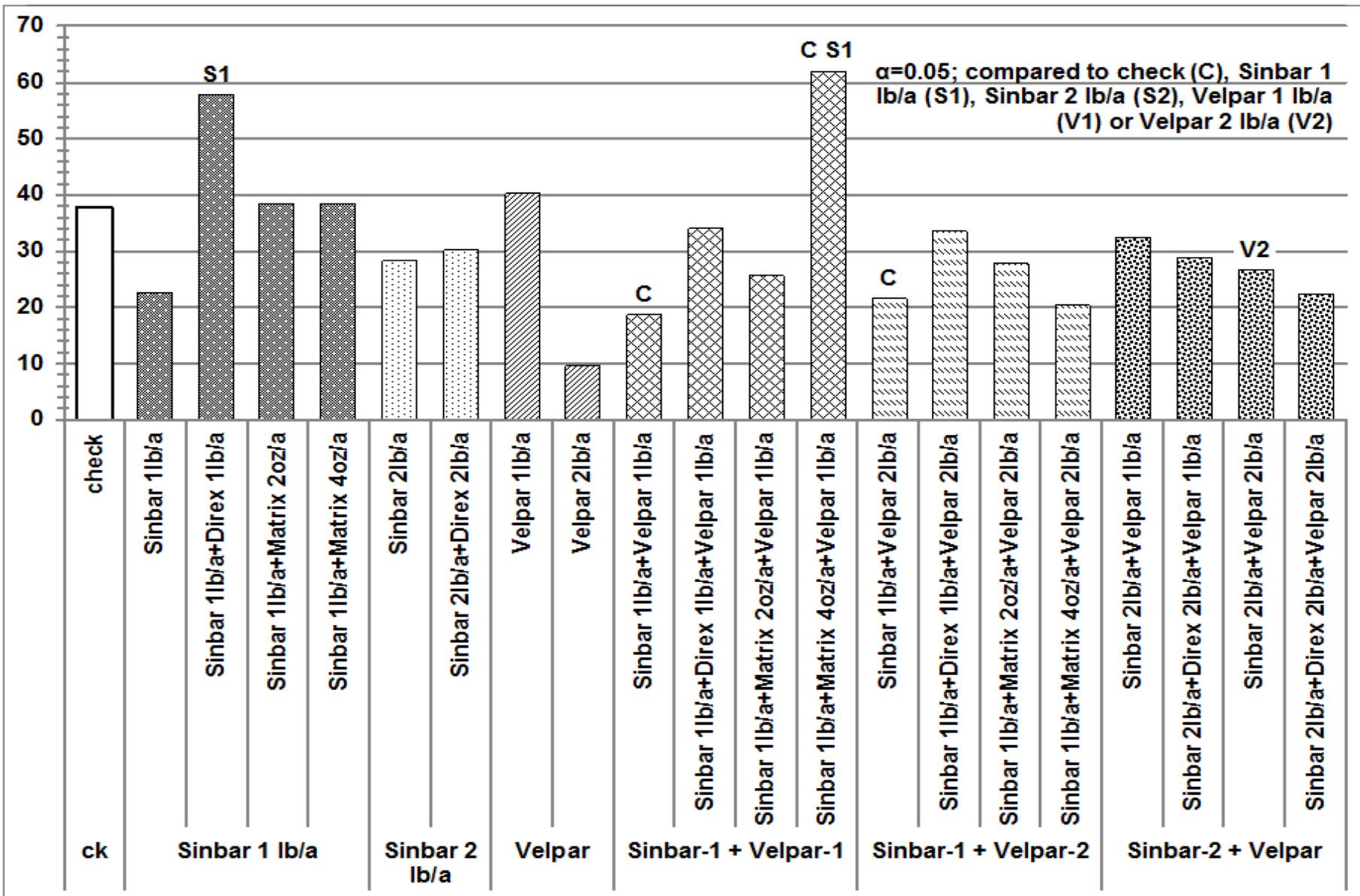
Sinbar Combinations - Plot Layout

| Check → | | | | | | | |
|---------------|----------------------------|-------------|-----------------------------|----------------------------|-------|-----------------------------|-------------|
| Velpar 2 lb/a | | | | | | | |
| Velpar 1 lb/a | Sinbar 1 lb+ Direx 1 lb | Sinbar 2 lb | Sinbar 1 lb+ Matrix 4 oz | Sinbar 2 lb+ Direx 2 lb | Check | Sinbar 1 lb+ Matrix 2 oz | Sinbar 1 lb |

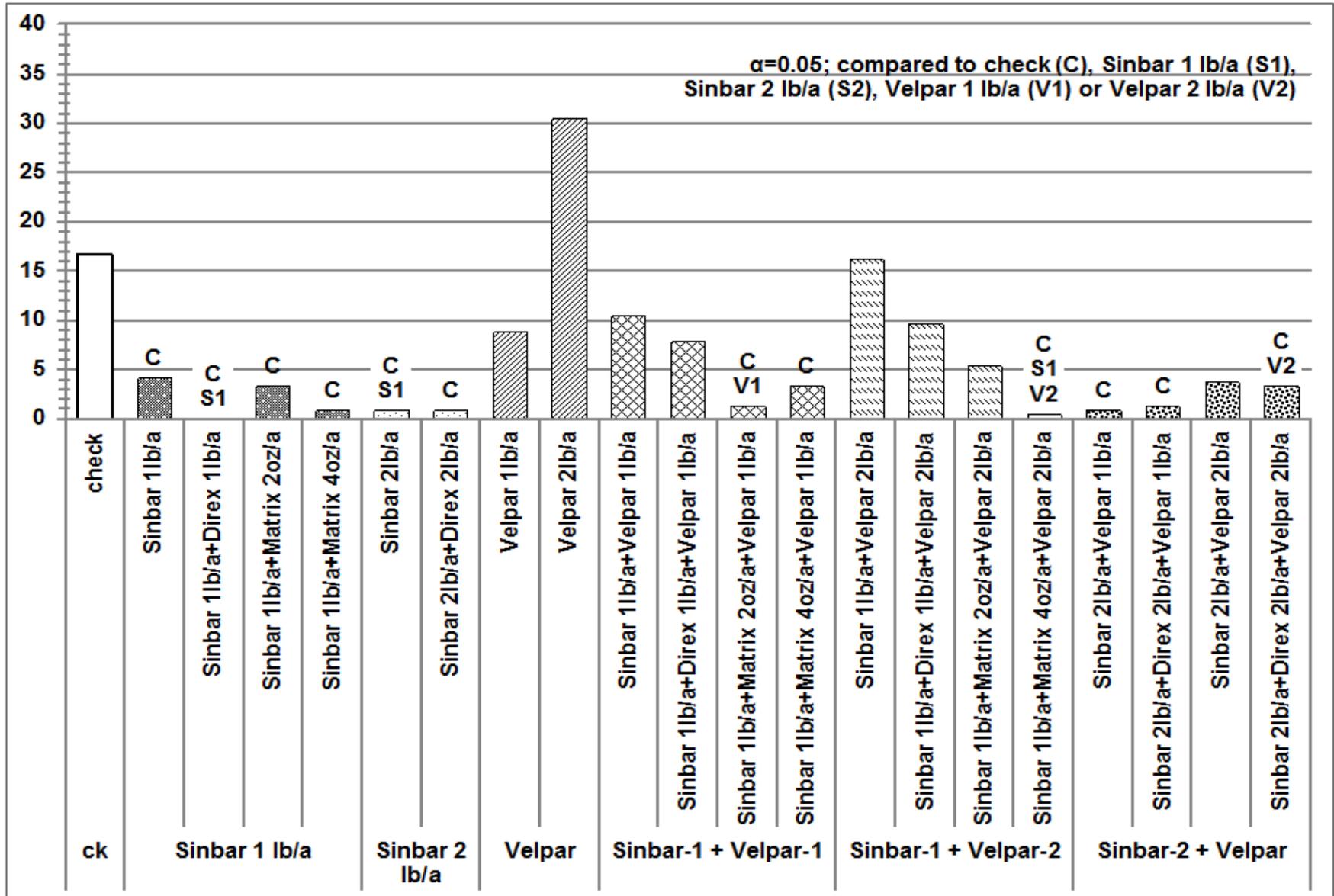
Sinbar Combinations - Blueberry Cover



Sinbar Combinations - Broadleaf Cover



Sinbar Combinations - Grass Cover



Sinbar Combinations - Results



Sinbar Combinations - Results



Sinbar Combinations - Conclusions

- Velpar alone especially with the higher rate increased grass cover, so the addition of Sinbar or Matrix is needed in combination to provide control
- Matrix at the higher rate when combined with both Sinbar and Velpar at the higher rate did provide better broadleaf and grass control
- Sinbar alone does not control broadleaf weeds so the addition of Velpar, Direx or Matrix is needed provide the additional control
- Some weeds such as ferns are not controlled by any of the treatments and would require spot treatment of Asulox

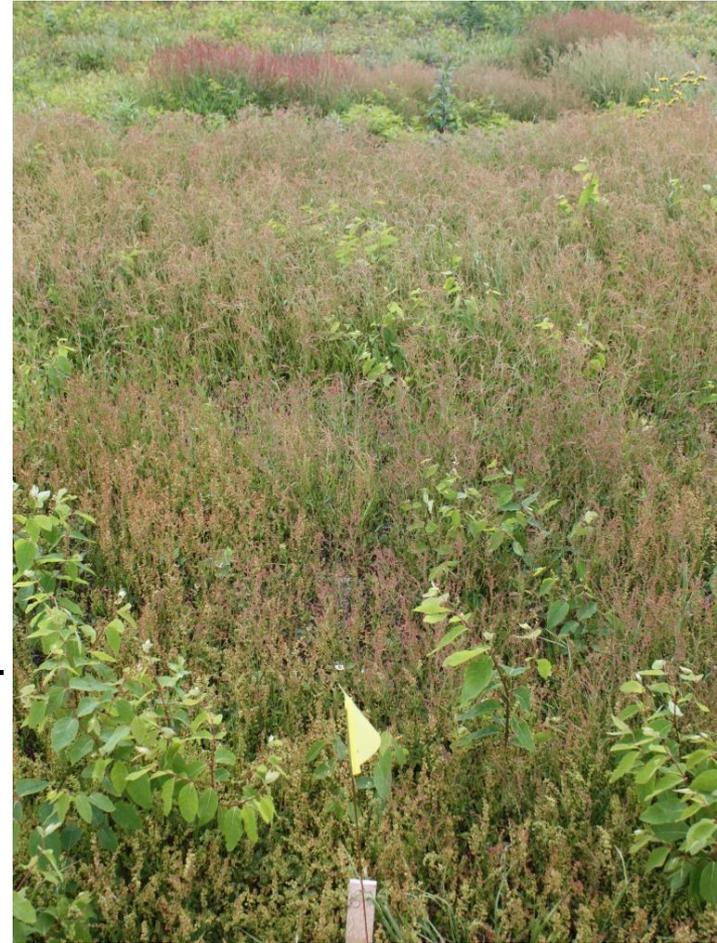
RED SORREL - OBJECTIVES

Red sorrel (*Rumex acetosella*) is a problem weed in wild blueberry fields

- Perennial weed with very long growing season
- Can outcompete wild blueberry for light and space
- Plants and seeds contaminate berries and equipment and interfere with pollination
- Resistant to many traditional herbicidal weed control regimens

We want to determine whether adding a contact-kill method of weed control in the fall after pruning to supplement growers' regular spray regimens will effectively control red sorrel

- Assess wild blueberry cover/injury, red sorrel cover, and other weed cover



RED SORREL - METHODS

Location: Station Road, Centerville, ME

Design: Completely Randomized Design with ten 1 m² replications per treatment

Treatments/Rates:

Check

Hand-held backpack oil burner

Reglone 2 pt/a + NIS 0.25% v/v (desiccant)

Roundup 2% v/v (broadcast)

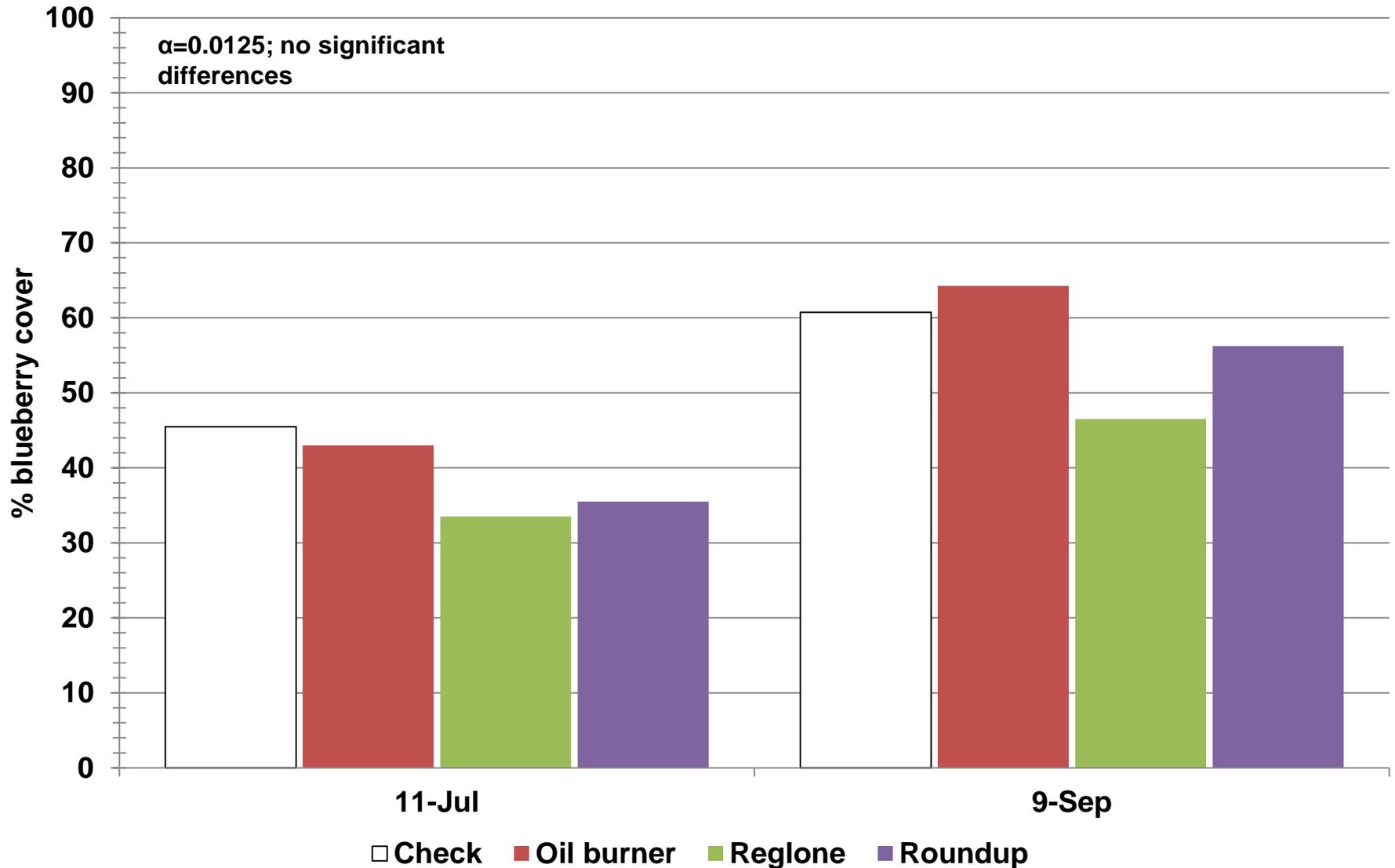


Timing: Burn treatment applied 16 November 2012; Spray treatments applied 19 November 2012. **Grower spray regimen applied Velossa 0.75lb/a, Callisto 6 oz/a**

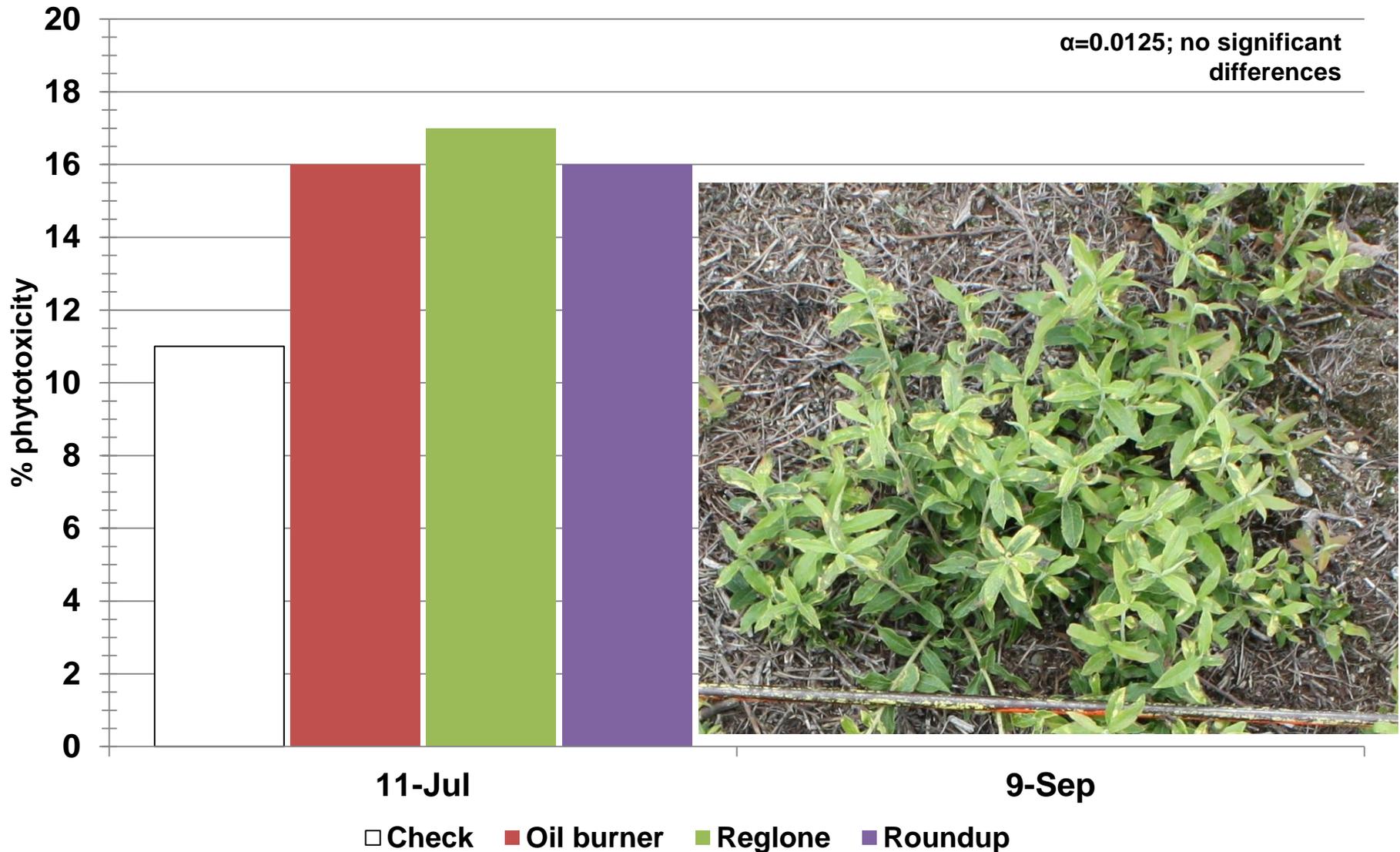
Evaluations: 1 July and 9 September 2013

Analysis: t-tests with Bonferroni adjustment ($\alpha=0.0125$)

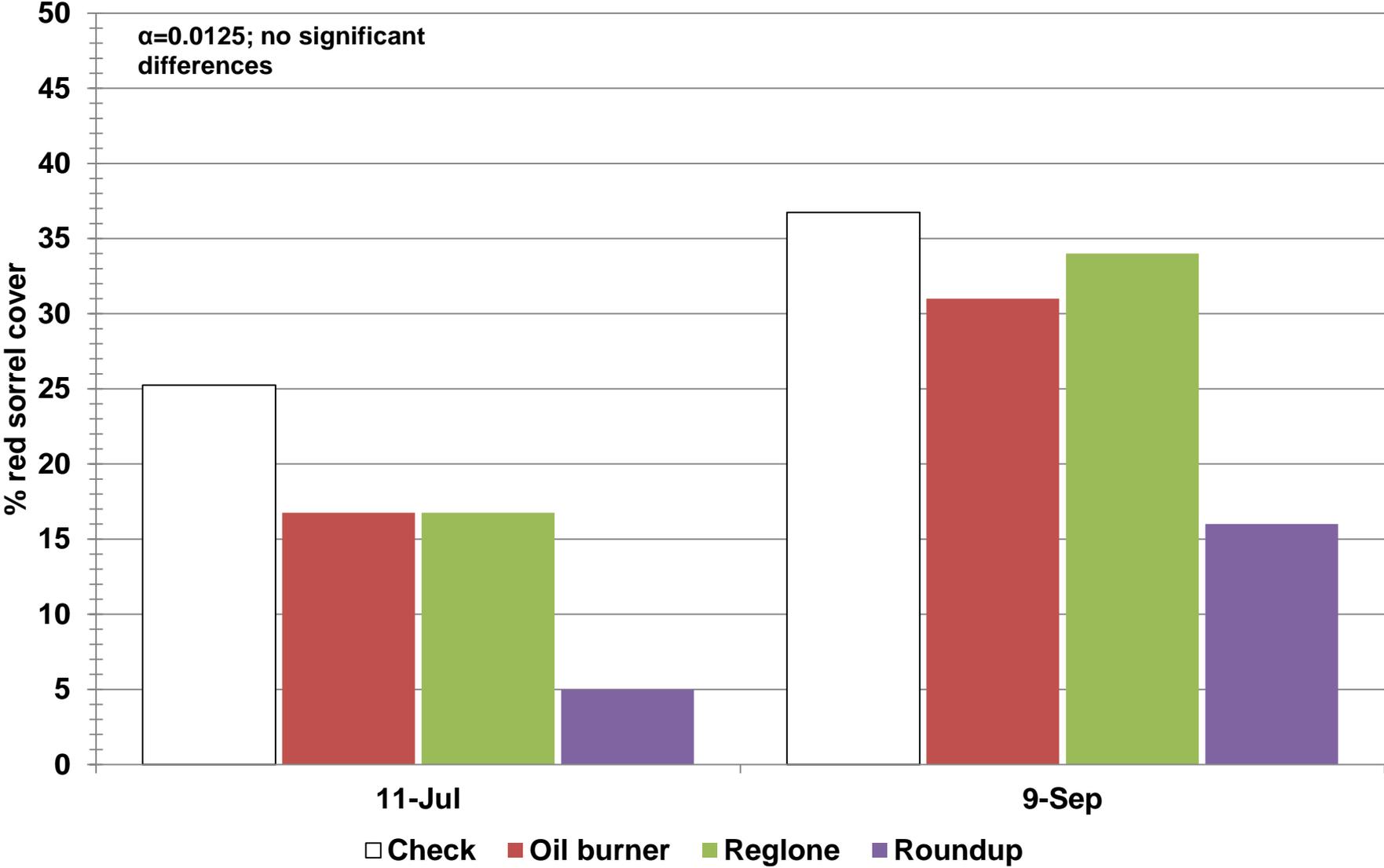
2013 wild blueberry cover following fall 2012 treatments for red sorrel control



2013 phytotoxicity following fall 2012 treatments for red sorrel control



2013 red sorrel cover following fall 2012 treatments for red sorrel control



Check



Burned



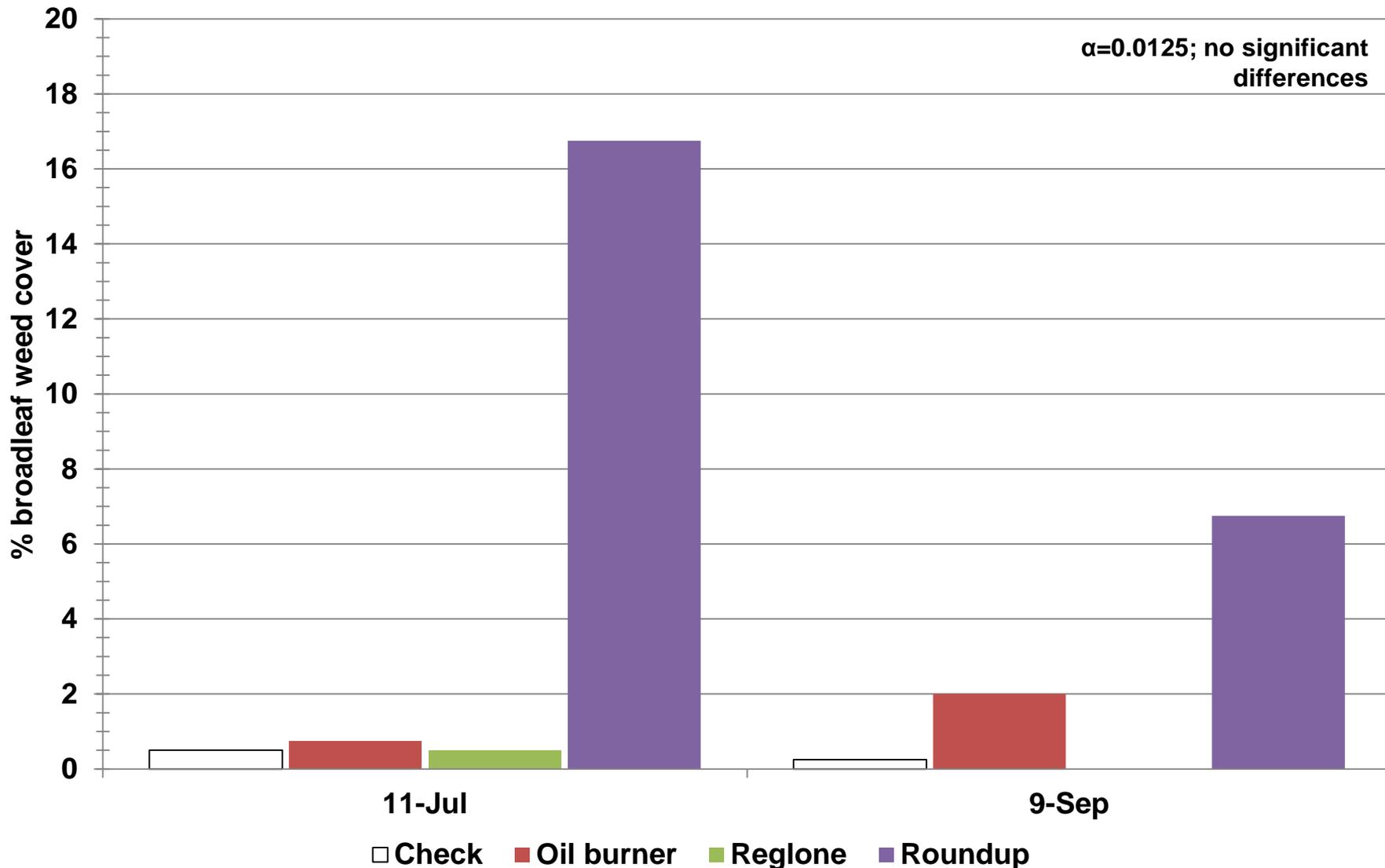
Reglone



Roundup



2013 broadleaf weed cover following fall 2012 treatments for red sorrel control





Blue toadflax and spreading dogbane released in the Roundup treatment

RED SORREL - CONCLUSIONS

Wild blueberry cover was not reduced by fall-applied treatments

- Low blueberry cover due to red sorrel colonizing bare spots at this site, and plots were located in the fall after pruning to include red sorrel
- **Reglone** had the lowest cover over the growing season

Phytotoxicity was not an issue for the fall-applied treatments

Roundup provided the best red sorrel control the following year, and could be broadcast sprayed in the fall without injury to blueberry

- However, other broadleaf weeds were released such as blue toadflax (*Nuttallanthus canadensis*) and spreading dogbane (*Apocynum androsaemifolium*), which are also problem weeds



RED SORREL - RECOMMENDATIONS

Continue 2013 trial through 2014 to assess effects on wild blueberry yield

Initiate an additional trial in fall 2013 examining effects of fall application of additional materials on wild blueberry, red sorrel and weeds with larger plots to get more cover of sorrel



Questions???

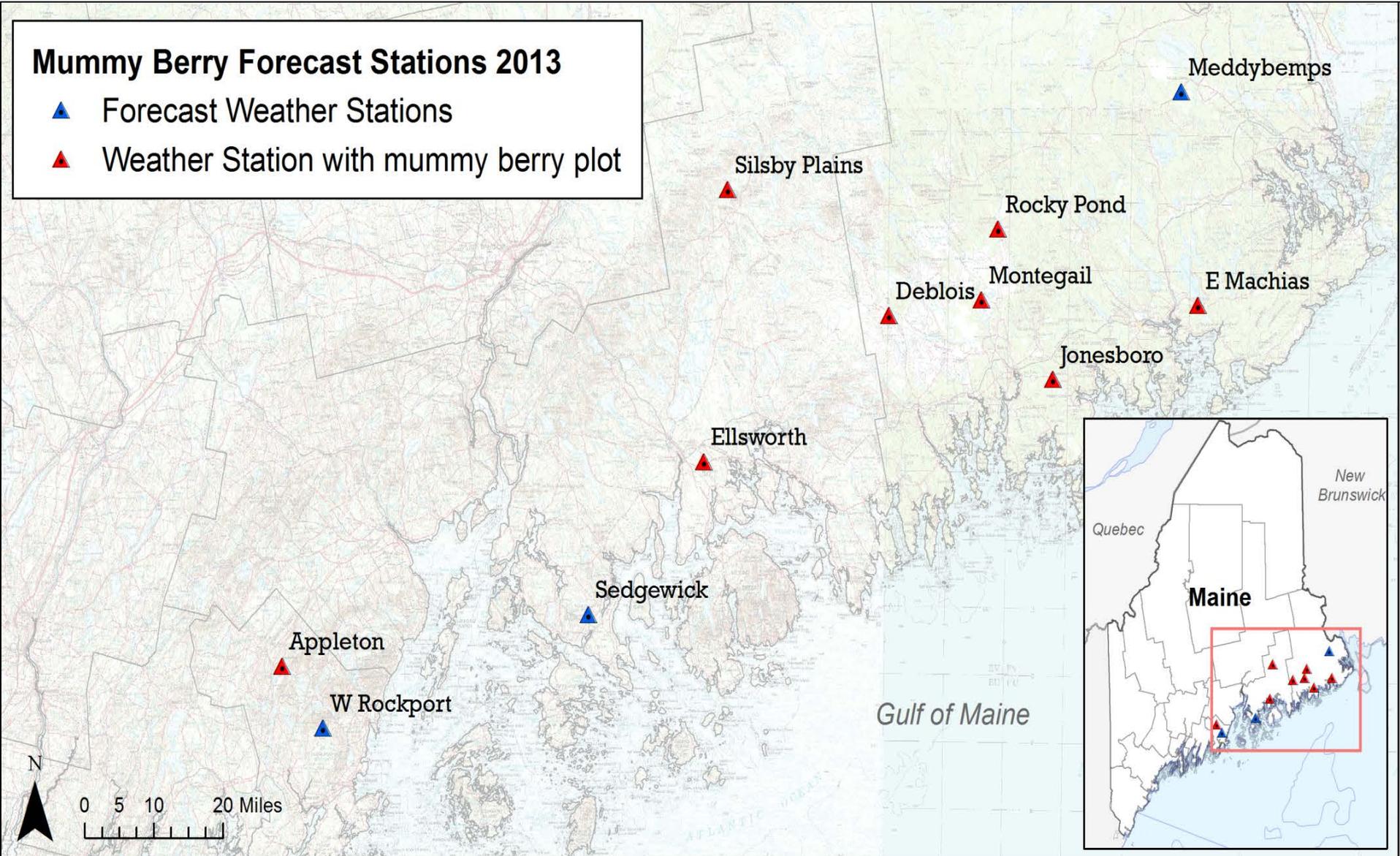




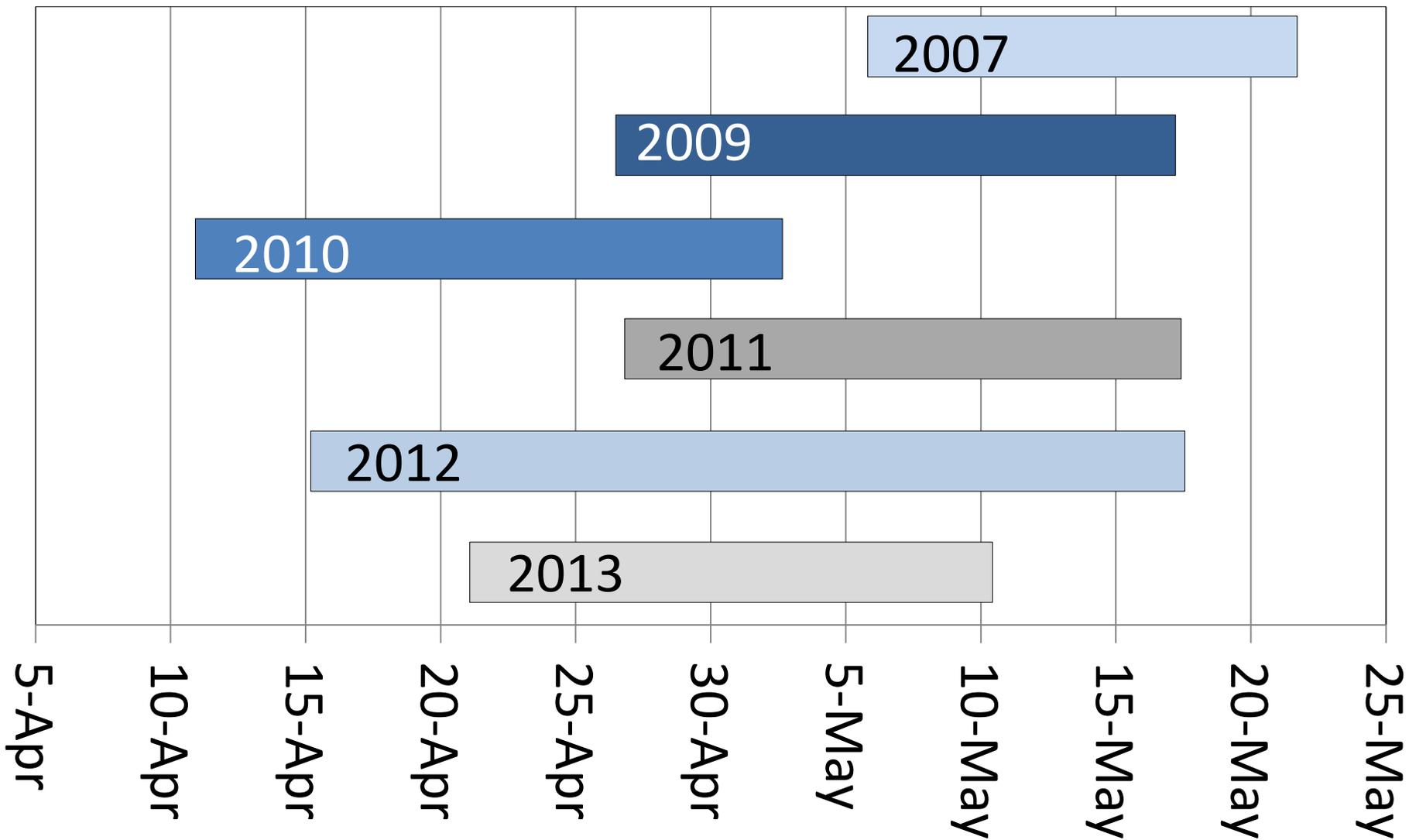
Blueberry Disease Research

Mummy Berry Forecast Stations 2013

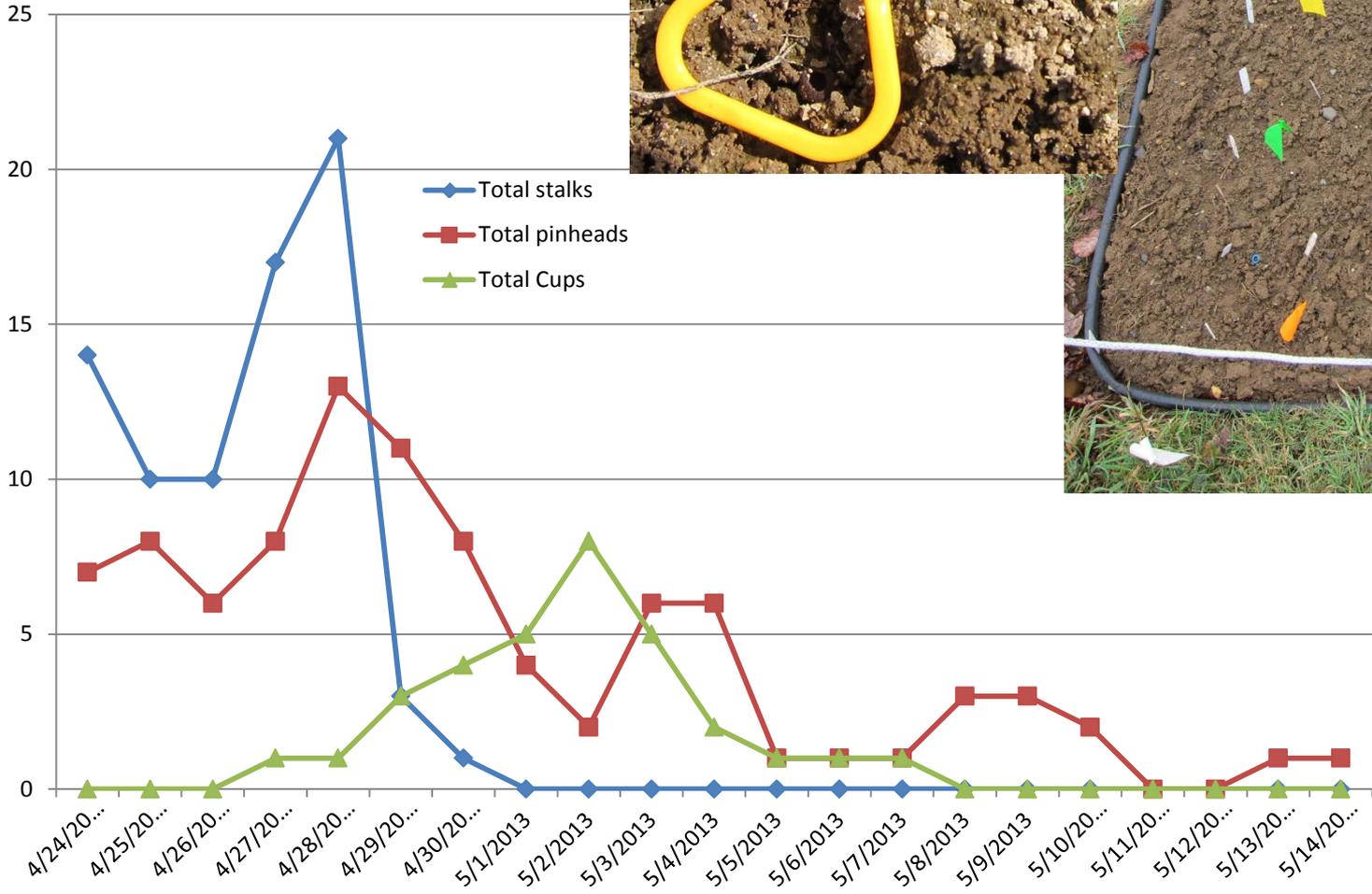
- ▲ Forecast Weather Stations
- ▲ Weather Station with mummy berry plot



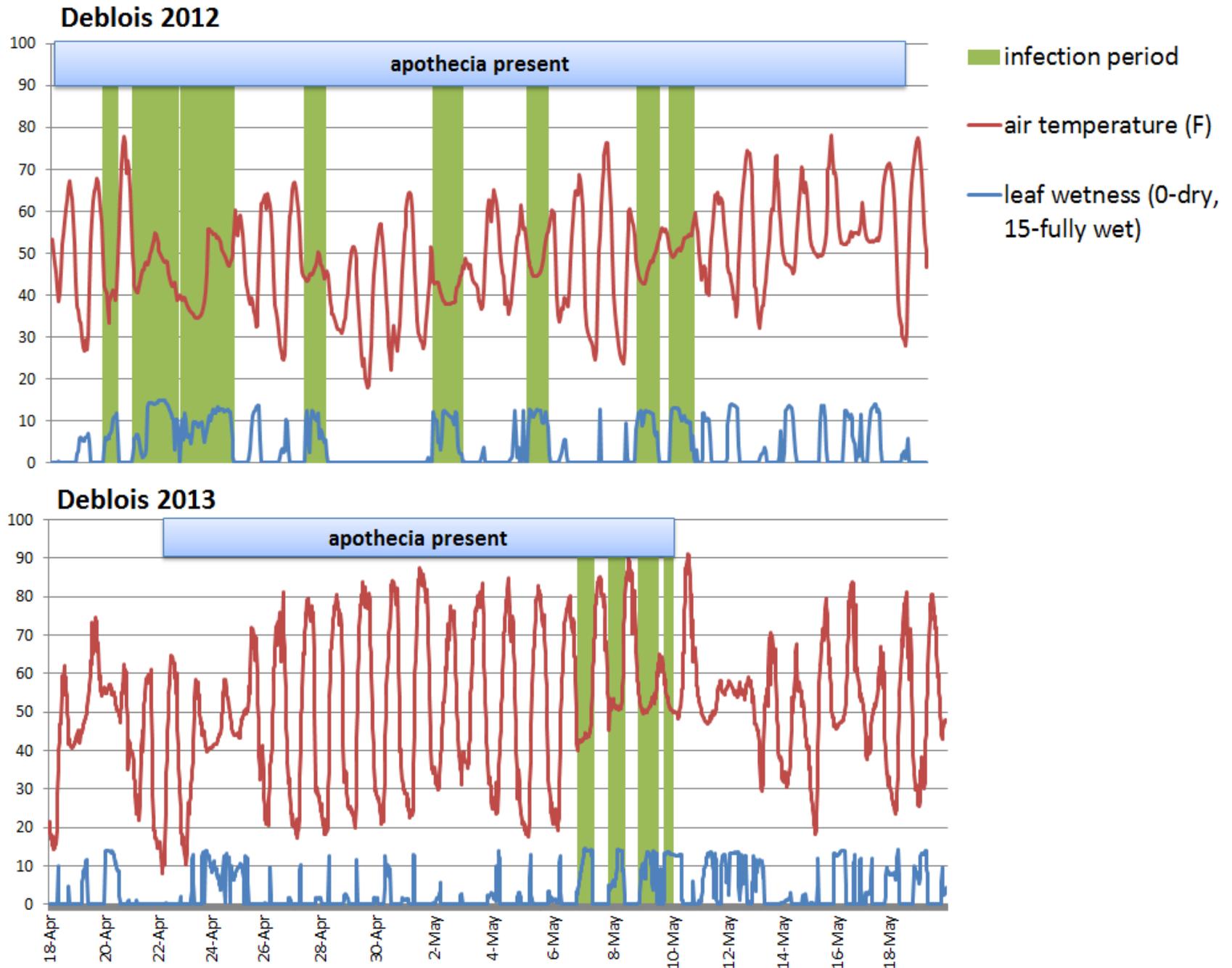
Presence of *Monilinia* apothecia (cups) in Deblois fields



Mummy berry common garden experiment – Orono, ME



Air temperature (F) and leaf wetness



Using weather data to:

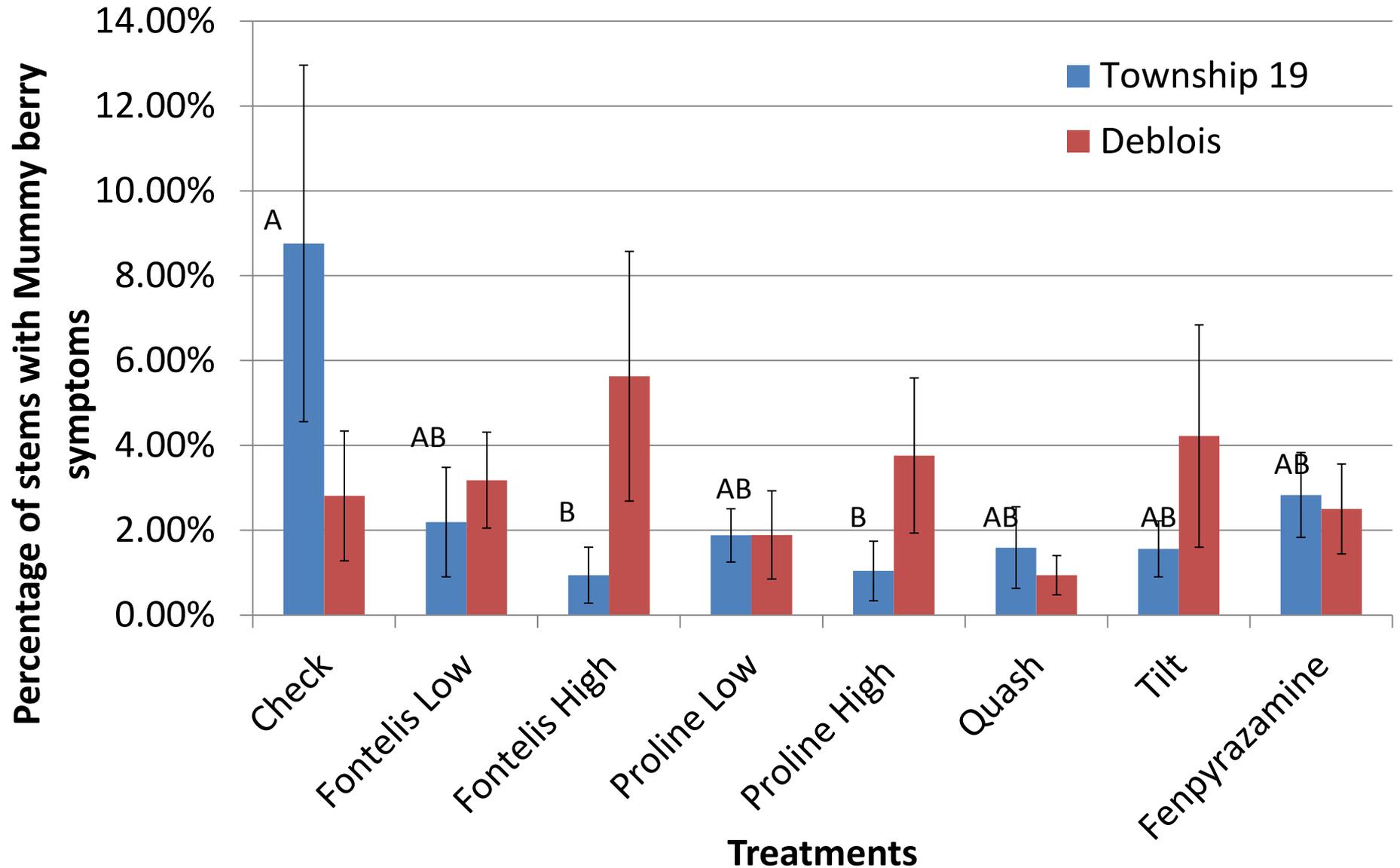
- Provide mummy berry forecast
- Testing Nova Scotia model for predicting bloom
- Validate forecast model for Botrytis
- Providing weather data to test models of emergence and development of spotted wing Drosophila and Blueberry maggot fly

Mummy berry fungicide trial

- Fungicides tested

| Trade Name(s) | Application Rate (per acre) | Component(s) | Company | Label |
|--|--------------------------------|-----------------|-----------------------|---|
| Fontelis (LEM17) + 0.25% v/v Silwet 77* | 16 ounces | penthiopyrad | DuPont | Blueberries |
| Fontelis (LEM17) + 0.25% v/v Silwet 77* | 24 ounces | penthiopyrad | DuPont | Blueberries |
| Proline 0.25% v/v Silwet 77* | 5.7 ounces | prothioconazole | Bayer Crop Science | Not yet |
| Proline 0.25% v/v Silwet 77* | 5 ounces | prothioconazole | Bayer Crop Science | Not yet |
| V10135 4SC | 16 ounces | fenpyrazamine | Valent Ag Products | Not Yet Labeled |
| Quash | 2.5 ounces | metconazole | Valent Ag Products | Supplemental Label For Blueberries |
| Tilt | 6 ounces | propiconazole | Syngenta | Blueberries |

Mummy berry disease – fungicide trials



Other results

- No phytotoxicity seen
- 1 to 10 % of stems showed frost damage, higher levels in Township 19 than in Deblois fields.
- Disease and frost levels had no significant effect on yield
- Recommending Fontelis for control of mummy berry disease for next year

Other research

- **Valdensinia leaf spot**
 - four new fields identified with disease
 - Erika Lyon, graduate student started work on population genetics of the fungus
- **Root rot**
 - completed one trial of Koch's postulates, another in progress
 - Would like to get graduate student to research control measures