Weed Research Update
Field Season 2014

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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

<table>
<thead>
<tr>
<th>“Early”</th>
<th>“Late”</th>
<th>Untreated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treated late May + mid-June</td>
<td>Treated mid-June + early July</td>
<td>Treated 2013 Only</td>
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<td>Treated 2013 + 2014</td>
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### Poison Ivy Results

<table>
<thead>
<tr>
<th></th>
<th>0 m</th>
<th>0.5 m</th>
<th>1 m</th>
<th>1.5 m</th>
<th>2 m</th>
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<tbody>
<tr>
<td>% PI Cover</td>
<td></td>
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<tr>
<td>0 m</td>
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<tr>
<td>% Cranberry Cover</td>
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<tr>
<td>0.5 m</td>
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<tr>
<td>Cranberry fruit</td>
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<tr>
<td>1 m</td>
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<tr>
<td>1.5 m</td>
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<td>2 m</td>
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“Early” Treated 2013+2014

“Early” Treated 2013 Only
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+COC
- Callisto+NIS
- Poast+Callisto+COC
- Poast+Callisto+NIS
- COC
- NIS
- Poast+COC
- Untreated
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 cannot 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

No differences in fruit

Treatment

Treated pre-flowering

Treated at flowering
Many growers report use of low rates (30-40#/A)
  - Some get good control...
  - But many growers also report failed control!

Can we improve control?
  - Split applications (extend control)
    - Dodder can germinate over long periods of time
  - Increase rates
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)
Questions?