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Moss as an emerging weed problem in cranberry

Katherine Ghantous

UMass Amherst - Cranberry Station, kghantou@umass.edu

Hilary A. Sandler

University of Massachusetts - Amherst, hsandler@umass.edu

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Moss as an emerging weed problem in cranberry

NACREW 2017

Katherine Ghanous and Hilary Sandler

UMass Cranberry Station

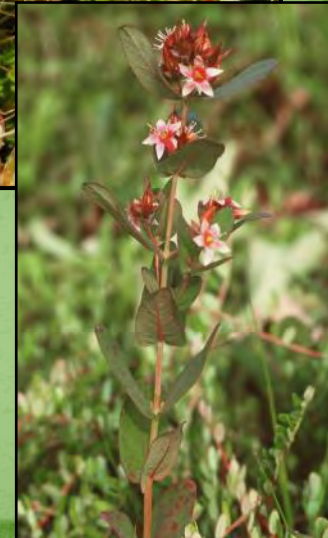
Weed Snapshot for NE Cranberry

More than 80 species noted as “weeds”

- Some invasive/non-native weeds
 - Phragmites, Purple loosestrife, Japanese Knotweed

Shifts in weed populations

- Gaps from herbicides
- Changes in management
 - Water use
 - Nutrients



Moss & Cranberry

- Increasing # of growers calls about moss infestations over the past few years
- Growers self-reporting moss issues
 - 2016 MA grower survey
 - 67% reported having moss on their farms
 - 41 % felt it was more common than 5 years ago
 - 41% considered moss to be a problematic weed
- Also reported as a weed issue in WI, Pacific NW, and other growing regions

Moss Species



Haircap
(*Polytrichum commune*)



Sphagnum
(Multiple *Sphagnum* spp.)

And at least three additional moss species present



Bog groove-moss
(*Aulacomnium palustre*)



Ceratodon purpureus



Entodon seductrix







Conventional Herbicides

Recent work has confirmed that currently registered herbicides:

- Casoron (60 lb/A)
- Evital (80 lb/A)
- Devrinol 2-XT (18 qt/A)
- QuinStar (8.4 oz/A x2)
- Callisto (8 oz/A x2)

provided little to no control of moss

Historical recommendations

- Historical recommendations for the region included:
 - Ammonium sulfate (100 lbs/A)
 - Casoron (high rates)
 - Copper hydroxides?
 - Iron sulfate (ferrous sulfate)
 - Old chart book recommendation was for VERY high rates
 - 3 oz/sq ft as spot treatment ~ over 8,000 lbs and acre!

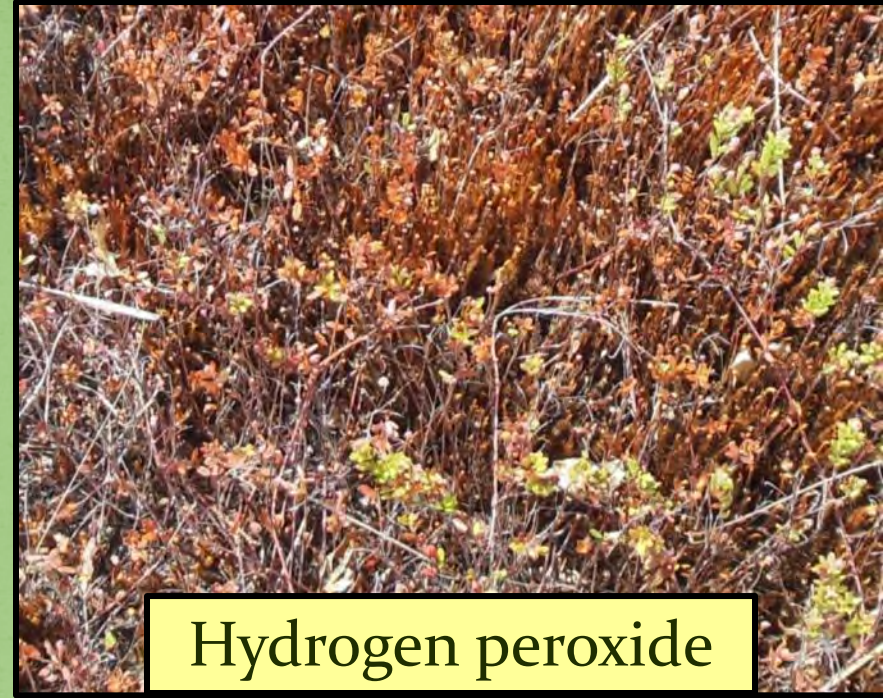
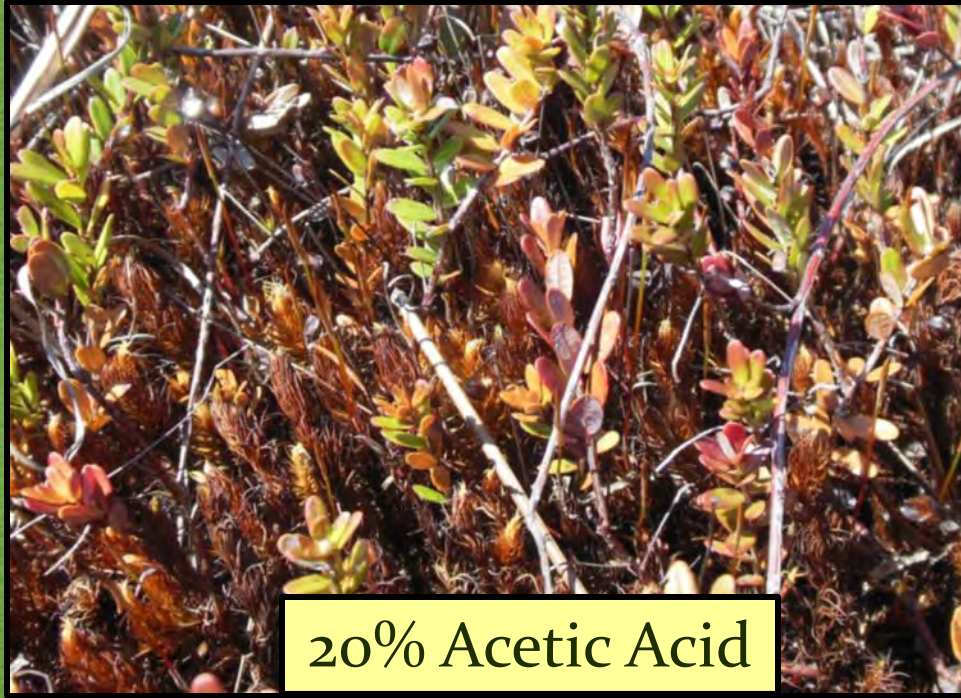
Product Screening for Moss Control

Summary of work between 2013 -present

1. Horticultural Vinegar
(5%, 10%, and 20% acetic acid)
2. Herbicidal soap
(22% ammoniated soap of fatty acids)
3. Product X
(5.3%, hydrogen peroxide)
4. Product Y
(22% potassium salts of fatty acids)



Vinegar and hydrogen peroxide



5% and 10% acid did not have lasting moss control

20% controlled moss, but injured vines
*vines eventually recovered from damage

CB vines had severe damage



ammoniated soap of fatty acids



potassium salts of fatty acids

Good moss control
Lots of cranberry damage

Good moss control
No cranberry damage



Potassium Salts of Fatty Acids

Product “Y” –NOT labeled for cranberry

(22% potassium salts of fatty acids)

- Labeled for use at 1:9 to 1:19 dilution.
 - Had better results with more concentrated solutions (1:9)
- Scaled up to chemigation (approx 400 gallons/A), would need 20 to 40 gallons per acre!
- Costly and difficult to deliver, even by boom since directions are to soak moss

M-pede - insecticidal soap (49% potassium salts of fatty acids)

- Already labeled for cranberry
 - Would only need a zee to use for moss
- More concentrated, more economical
- **BUT DOESN'T WORK!**



Potassium salts may include: potassium laurate, potassium oleate, potassium myristate, and potassium ricinoleate.

Iron (ferrous) sulfate

Feed-grade powdered form via drop spreader

(92% ferrous sulfate with 30% elemental iron)



Large granules (fertilizer sized)

(50% ferrous sulfate), not as effective

Chemigating iron sulfate for moss

- Powdered form could be dissolved in water and chemigated
- Can be used as a soil amendment
- NOT currently registered for use as an herbicide in cranberry



Other iron (ferrous) sulfate products

(NOT registered for use as an herbicide in cranberry)

Liquid turf product A

- 35% ferric sulfate (9.75% elemental iron product)
- Not effective on haircap
 - even at 3x the labeled rate at 30 gal/A

Liquid turf product B

- liquid turf product (15% Urea Nitrogen, 3% Combined Sulfur, 6% Iron)
- Way too much N and not enough iron sulfate

Granular turf product

- (17.5% ferrous sulfate), small sand like granules
- Somewhat effective at labeled rate (approx. 200 lbs/A), and would likely be more effective at higher rate

Other herbicides recently tested

Aim (recently registered; carfentrazone)

Did not control moss when applied:

- before cranberry budbreak
- in fall after cranberry dormancy
- **very injurious to non dormant cranberry**

Herbicides not currently registered for cranberry

- **flumioxazin – effective on moss in both fall and spring applications to dormant cranberry**
 - **ongoing IR₄ to pursue registration**
- **sulfentrazone – IR₄ contender**

Questions?

