



University of
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Amherst

Optimizing use of Casoron

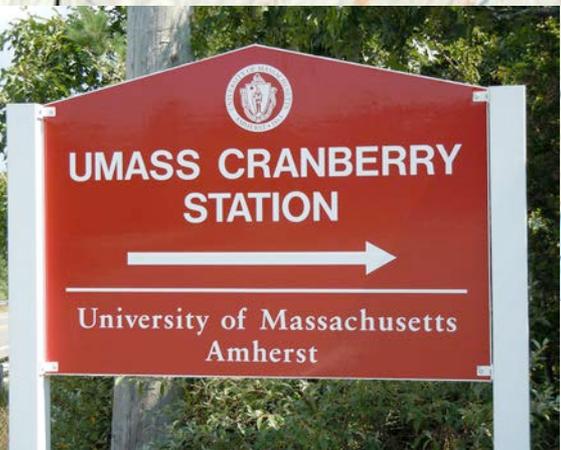
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Today...

- Intro to Casoron
- Research results
- Maximizing use of Casoron on cranberries

Casoron (Dichlobenil)

- Discovered in 1950s in Netherlands and introduced to cranberry in early 1960s
- Inhibits **germination**, meristem growth
 - Root tips
- Mode of action not clearly understood but thought to inhibit cell wall formation

Casoron 4G – Pre-emergence

- Nitrile family, 4 lb a.i. –
WSSA/HRAC **Group 29**
- Volatilizes rapidly
- Incorporate immediately and thoroughly!!
 - Binds to soil particles
- Compound is lost readily soil/air T >60 F.
- 100 lb in 12 months (US label)

Effective against

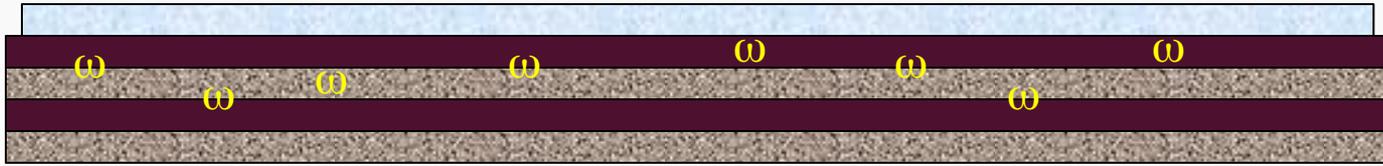
- Seeds
- Small seedlings
- Some impact on weeds with rhizomes, stolons, and tubers – suppression
- Grasses and broadleaf plants
- Not vs established weeds



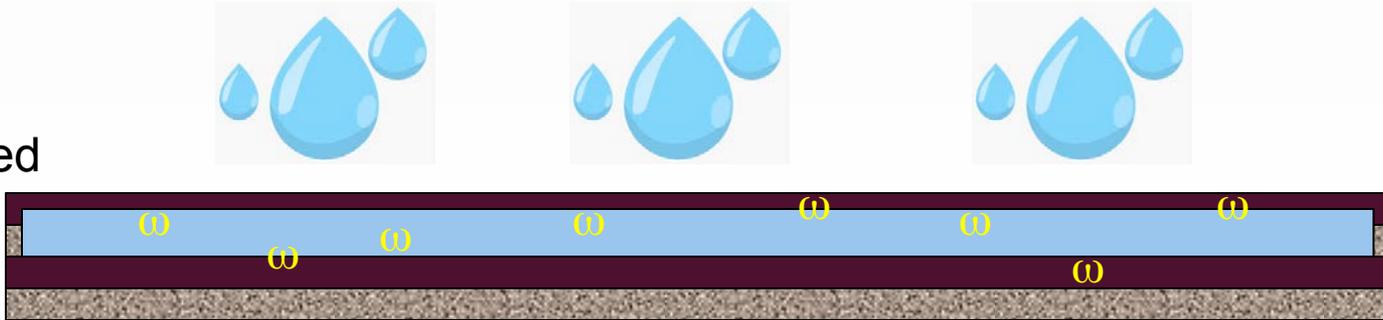
How Casoron works

Herbicide

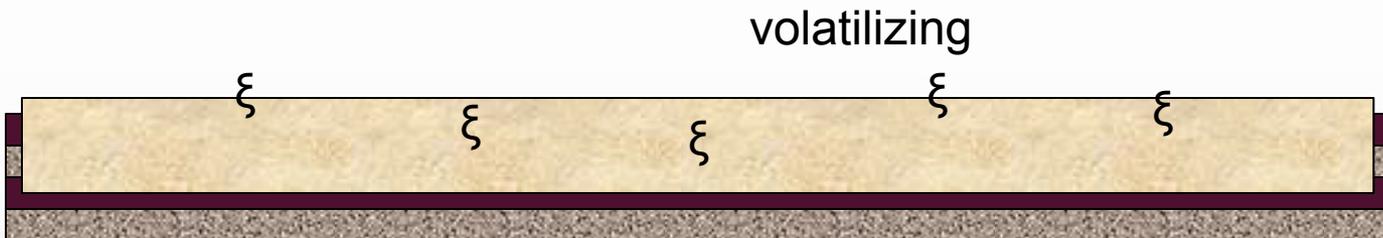
CB soil



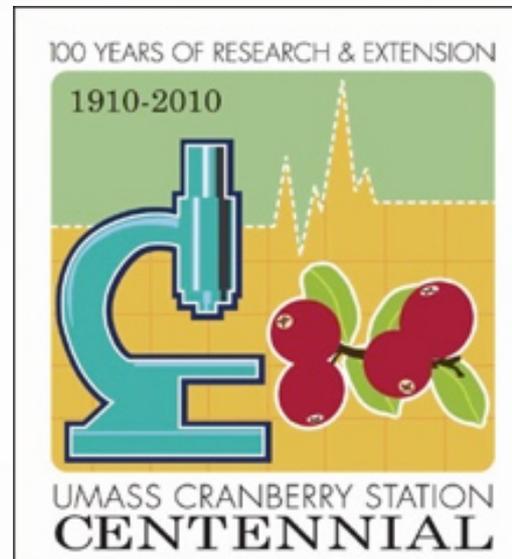
Incorporated
by water



Vapor
barrier



RESEARCH



Demoranville and Devlin

- Dichlobenil associated with increase in anthocyanin synthesis (Weed Science 1968)
- Field study: 4 yr of 3.4 kg ai ha⁻¹ (75 lb/A product) had higher yield than unt or 4.4 kg ai ha⁻¹ (100 lb/A) rates (Cranberries Magazine, 1969)



Previous research

- GH study: Cuttings produced enough roots to predict successful rooting & colonization (D & D, Cranberries Magazine 1969).
- GH study: Cuttings treated with 3.4, 5.6, and 7.8 kg ai ha⁻¹ (75, 125, and 175 lb/A product) produced no new growth (D&D, 1974, Weed Sci Soc Amer abstract)
- 3-yr study predicted linear relationship btw increasing herbicide use and decreasing fruit set (Kusek, Ocean Spray Cranberries, 1991, in-house memo)

Research - Sandler lab

- Importance of surface layer
- Used root length bioassay to evaluate Casoron (30 lb/A) activity when applied on top of 5 depths (0-2 in) of sand or leaf litter
 - Used low rate as per current dodder recommendations

Alfalfa seedlings
sensitive to Casoron



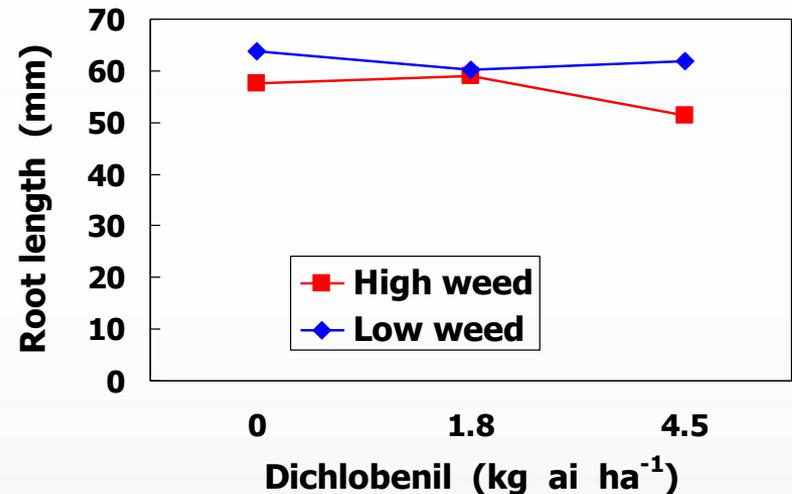
Soil Surface Characteristics: Results

- Efficacy was lost more quickly when Casoron applied to sand compared to leaf litter (or presence of OM helped to retain herbicide)
- Composition of surface layer was more important than depth of surface layer

Repeated Annual Applications

- 4 yr, 1.8 & 4.5 kg ai ha⁻¹ (40 & 100 lb/A) on EB and Howes did not affect (adversely or positively):
 - Upright productivity
 - Leaf biomass production
 - Percent fruit set

Weediness and herbicide rate affected cranberry root length. Longer in LW areas receiving 0 or 4.5 kg, shorter in HW areas.



4 yr Repeated Apps: Conclusions

- Presence of weeds, rather than herbicide application, was impt determinant of yield performance
 - High weed areas had lower % fruit set and less marketable yield

Varietal response to timing of application

- BL, EB, Howes, and ST
- 40 and 60 lb/A in single year (follow up in Y2); repeated twice
- 7 Weekly applications, starting bud elongation (early May) through bloom (mid-late June)
- Improve control of dodder without hurting vines?

Varietal Response: Conclusions

- Leaf symptoms appeared (esp BL) but resolved by end of season
- Applications made jewel through bloom had highest injury ratings
- No yield impact for any treatment, variety combination in either year



Follow up...

What about?

- Repeated applications later into the season?
- Use of Casoron on new varieties?

Response

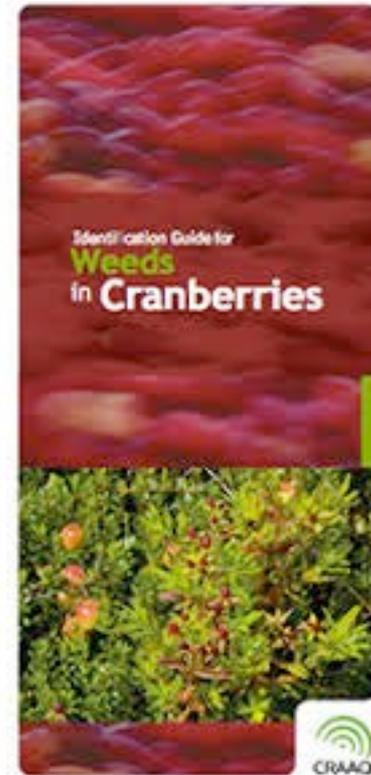
- **Coming Soon!** 6-yr (every other year) study looking at 40, 60 lb/A Casoron applied bud elongation through bloom on BL, EB, ST, H.
- 3 yr repeated annual apps of 60 lb/A Casoron on CQ, MQ, ST, and Dem

USING CASORON EFFECTIVELY



Maximizing efficacy

- Make sure you are targeting susceptible weeds
- Use right rate for target weed



\$25 plus shipping from
Cranberry Station

Casoron - Target plants

- Crabgrass, Rattlesnake
- *Panicum*, Summer
- Aster family
(thistles, ragweed)
- Dodder
- Horsetail
- Tearthumb, Smartweed
- Beggarsticks, YLS
- Rice cutgrass
- Woolgrass,
Cottongrass, Nut
sedge, Needlegrass
(all sedges)
- Hawkweed
- Wild strawberry
- *Hypericum* species

Maximizing efficacy

- Apply close to time of germination or emergence as possible
- Ground or air
- Impact of heavy rain or frost events unk
- Allow 3-6 weeks between multiple applications (us. for Dodder)
 - If not getting expected control, increase rate

Maximizing efficacy

- Uniform applications (calibrate!!)
- Retain in top few inches, if possible
- Do not overlap!
- Temporary reddening of vines may occur, esp with later apps, sandy soils

Yellow Vine Syndrome

- Yellowing along edges (Christmas tree)
- In old leaves first, usually
- Symptoms expressed later in season, stress
- Casoron does NOT cause YVS, but could be stressor





Do NOT apply...

- ...To new plantings (roots must establish)
- ...Prior to or just after mowing
- ...After bud elongation, esp high rates
- ...Casoron and then sand on top
 - Casoron can be applied on top of sand, just not other way around

Thank You!!

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Research
& Extension

