

Weed Management Update: New Tools for the Weed War

Andrew Senesac, Ph.D.

Weed Science Specialist

CCE of Suffolk County

LI Agricultural Forum

Jan. 14, 2011

Mugwort, Mum Weed, Chrysanthemum weed

One of the Most Troublesome
Perennial Broadleaf Weeds in Perennial Crops



April to early May

Mugwort

(Artemisia vulgaris)



Aster family (Astraea)

Mugwort moves to new sites
by two major pathway

1. Windblown seed
2. In leaf mulch and compost.
 - Rhizome pieces are very difficult to control even in fully processed compost.



Mid to Late March

Mugwort

Artemisia vulgaris



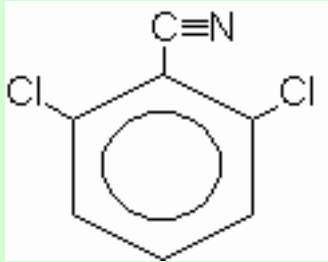
Common Ragweed

Ambrosia artemisifolia



Mugwort Management

- Selective control: Casoron will suppress mugwort in the first half of the season.
- Non-selective control: Glyphosate applied in mid spring to late summer is best chemical option we have.
- Scouting is best way to keep it from establishing.
 - Early in season or after compost or mulch additions.
- In-row cultivation and moving composted materials does NOT control this weed.



Casoron 4G (old)

Casoron 1.4 CS (new formulation)

dichlobenil

Mode of action

WSSA Group: 20

Inhibition of cell wall (cellulose) synthesis

- Apple, Pear, Cherry
- Blackberry, Blueberry, Grape, Raspberry
- Important tool for perennial weed control: mugwort and yellow nutsedge (suppression).

Emerged mugwort

- Casoron 1.4 CS will not control mugwort after it has emerged. It should be used in combination with a postemergence herbicide that will knock back the emerged growth.



Mid to Late March

Eastern Black Nightshade (EBN)

Solanum ptychanthum

- a troublesome summer annual weed of the Solanaceae family.
- EBN is the most common weed of this genus (which includes potatoes and tomatoes) infesting Long Island fields.
- similar species occur less commonly
 - black nightshade, *S. nigrum*
 - hairy nightshade, *S. physalifolium*

Eastern Black Nightshade (EBN)

Solanum ptychanthum



Early Response of Eastern Black Nightshade to Herbicides Available for Long Island Vegetable/Fruit Production

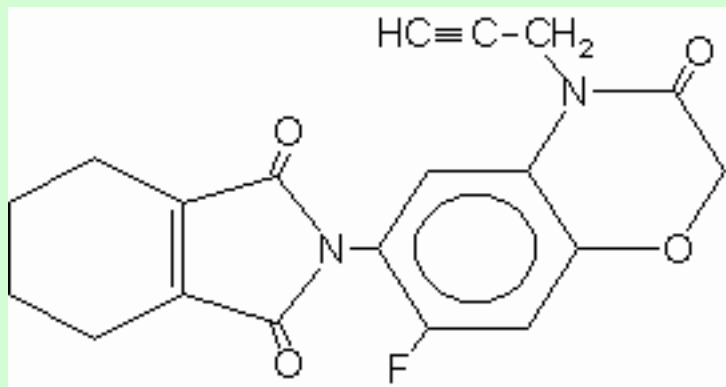
Herbicide	Percent Control	
	pre-emergence	post-emergence
Untreated	0	0
AATREX	86	100
AIM	~	100
BASAGRAN	~	100
CALLISTO	~	89
CHATEAU	100	100
DEVIRINOL	0	~
GOAL XL	100	~
IMPACT	~	85
KARMEX	97	~
MATRIX	0	60
OPTION	~	94
REFLEX	0	100
SANDEA	0	79
STRATEGY	94	~

Longevity of Control

Eastern Black Nightshade							Annual Grasses
Percent Control							
TREATMENT			seed1 (0WAT)	seed2 (4WAT)	seed3 (8WAT)		
Trade Name	Form	Rate lb/a a.i.					
Untreated	~	~	0	0	0	0	
Chateau	51WDG	0.0625	100	100	97	97	
Karmex	80WDG	0.50	60	60	0	63	
Goal	2EC	0.25	97	93	90	97	
Aatrex	4L	0.50	53	20	0	77	
Strategy	2.1EC	0.79	77	73	0	83	
Strategy	2.1EC	1.60	97	87	100	100	
Sencor 2xLUR	75DF	1.00	77	83	93	83	

Managing Eastern Black Nightshade in Vegetable Crops

- EBN is not well controlled by Devrinol or use rates of Sencor.
- EBN can be controlled with several selective herbicides labeled for vegetables and fruit crops.
- If this weed is a problem, rotating into a crop where it is well controlled will help reduce weed seed bank.

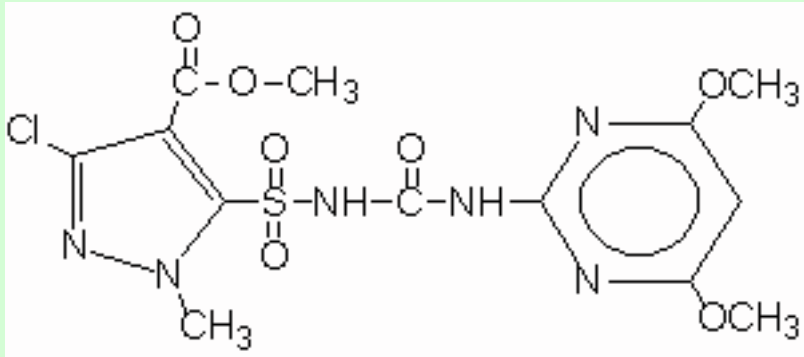


Chateau 51 WDG (SW) flumioxazin

- WSSA GROUP 14: Inhibition of protoporphyrinogen oxidase (PPO)-causes cell membrane disruption and loss of chlorophyll production.

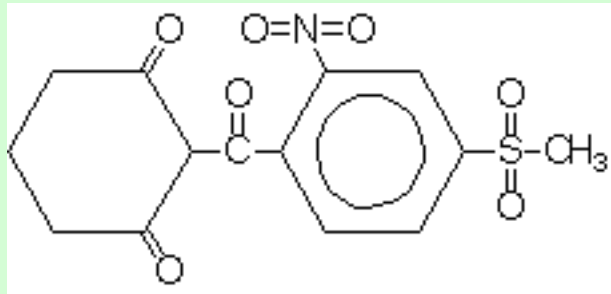
Now labeled on:

- Grapes, -Pome, Stone and non-bearing fruit trees.
 - Pre-bud break, spring or fall applications allowed
- Strawberries: @3oz/a/year- Pre-plant, shielded and dormant.
- Blueberries: pre bud break or after harvest.



Sandea & Profine 75 *halosulfuron*

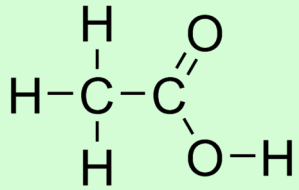
- WSSA group 2: ALS inhibitors: inhibits amino acid production and overall growth, slow acting and systemic
- Uses for blueberry, cane berry and tree fruits are in process of registration
- Important tool for selective yellow nutsedge control



Callisto

Mesitrione

- Callisto owes its origins to the discovery of a natural herbicide secreted by the Callistemon plant (bottlebrush) by a Syngenta scientist.
- **Bleaching:** Inhibition of 4-hydroxyphenyl-pyruvate-dioxygenase (4-HPPD). Since carotenoids are required for photosynthesis and protection of chlorophyll and plant cell membranes during photosynthesis, inhibition of this enzyme leads to plant death in sensitive species.
- **Blueberry, Asparagus, Rhubarb**
 - Planting unspecified rotational crops, or those rotational crops that are specified at shorter than recommended intervals may result in injury to the rotational crop.



20% Acetic Acid Weed Pharm

www.pharmsolutions.com

EPA registration & NYS registration

Can be used **for non food** crop use (since 2007)

- In Fall 2010, **WeedWorks** received an EPA registration for **Food Use** (approved for Organic Production).
- **NYS Registration for this use is expected in 2011.**
- The product will be available as pre-mixed 20% Acetic Acid Solution. (Vinegar is 6.5% acetic acid.)
- **The label will have a *Danger* Precaution.**
- This will be applied at 60 GPA.
- **Research indicates very good burn-down of BL weeds.** Smaller grasses should also be controlled.
- **For pre-plant and directed application.**

Aim: Carfentrazone

Rage: Carfentrazone & Glyphosate

- WSSA GROUP 14: Inhibition of protoporphyrinogen oxidase (PPO)-causes cell membrane disruption and loss of chlorophyll production.
- Contact herbicide: Controls BL but not grassy or sedge weeds.
- Labeled on cane fruits and tree fruits: dormant or directed apps. For primocane and BL weed control.

The War on Weeds

- New Herbicide Chemistry is slowly being labeled on a variety of fruit crops.
- Chemistry is generally low leachability and low environmental load (especially good for LI).
- We still lack some very effective tools for some troublesome weeds.
- This makes it more important to be very aware of new infestations appearing in fields.