Prospective herbicides for vegetable crops: research and registration update

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Prospective herbicides for vegetables

- Registration update:
  - Dual Magnum (24c) label on veggies
  - Prowl H2O on Carrot
  - Nortron on Table Beet

- Research updates:
  - Transplanted cabbage
  - Beets
  - Carrots
  - Snap beans

WI Dual Magnum 24(c) update

- What is an indemnified label?
  - You, the grower, assume ALL risk of crop injury, crop yield reduction and crop loss
  - If these conditions are not acceptable, then DON'T use it!

- 24(c) label expires December 31, 2011
- Valid in Wisconsin only

- Labeling must be in possession of user at time of application

syngenta

FIFRA Section 24(c) Special Local Need Label

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF WISCONSIN

Dual MAGNUM®

EPA Reg. 100-816
EPA SLN No. WI-070001

Expiration Date: December 31, 2011

KEEP OUT OF REACH OF CHILDREN

CAUTION

SYNGENTA'S SPECIAL CONDITIONS, RISKS OF USE AND DISCLAIMER FOR USE OF DUAL MAGNUM ON CROPS ON THIS 24C LABEL

IMPORTANT- READ BEFORE USE

THESE CONDITIONS RISKS OF USE AND DISCLAIMER ARE REQUIRED BY SYNGENTA CROP PROTECTION INC AND NOT SPECIFIED BY U.S. EPA OR THE STATE OF WISCONSIN

Labeling may be obtained through the Special Labels link at www.farmassist.com.

FOR CONTROL OF WEEDS IN ASPARAGUS, TRANSPLANTED BELL PEPPER, TRANSPLANTED BROCCOLI, TRANSPLANTED BRUSSELS SPROUT, TRANSPLANTED CABBAGE, TRANSPLANTED CAULIFLOWER, TRANSPLANTED CHINESE CABBAGE, CARROT, TRANSPLANTED CELERY, DRY BULB ONION, TRANSPLANTED EGGPLANT, DAIKON RADISH, GARDEN BEET, PARSNIP, RADISH, TURNIP, RUTABAGA, GREEN ONION, HORSERADISH, LEEK, RHUBARB, SPINACH, AND SWISS CHARD.

WI Dual Magnum 24(c) update

Asparagus
Broccoli (trans.)
Cabbage (trans.)
Chinese cabbage (trans.)
Carrot
Eggplant (trans.)
Garden beet
Radish
Rutabaga
Horseradish
Rhubarb
Swiss chard

Bell pepper (trans.)
Brussels sprout (trans.)
Cauliflower (trans.)
Celery (trans.)
Dry bulb onion
Daikon radish
Parsnip
Turnip
Green onion
Leek
Spinach

Prospective herbicides for vegetables

IMPORTANT NOTE:

The majority of these herbicides ARE NOT registered on these crops

Always read and follow the label prior to pesticide use!

Prospective herbicides for vegetables: 2007 Studies

- Beets: Arlington
- Cabbage: Arlington
- Carrots: Two Rivers, Hancock
- Celery: Arlington, Berlin
- Peas: Arlington
- Potatoes: Antigo, Arlington, Hancock (5 trials)
- Pumpkins: Arlington
- Snap beans: Arlington, Hancock
- Rotation studies: Antigo, Endeavor, Hancock, Spooner

Chateau/Spartan evaluation on cabbage

- Chateau
  - Active ingredient: flumioxazin
  - Other trade name: Valor
  - PPO inhibitor herbicide: same mode of action as Goal, Spartan, Blazer
  - Pre-emergent and post-emergent activity
    - Good soil residual
  - Not currently registered on cabbage (2006 IR-4 residue trial)

- Spartan
  - Active ingredient: sulfentrazone
  - Pre-emergent herbicide

Chateau

1 day post-transplant

Chateau

3 days post-transplant

Chateau

7 day post-transplant

Spartan

4 oz/A

Cabbage weed control

Treatment	Timing	Rate	Yield (ton/A)
Chateau	1 d post-trans	1 oz/A	19.8
Chateau	1 d post-trans	2 oz/A	22.9
Chateau	3 d post-trans	1 oz/A	19.7
Chateau	3 d post-trans	2 oz/A	23.6
Chateau	7 d post-trans	1 oz/A	19.4
Chateau	7 d post-trans	2 oz/A	20.9
Spartan	1 d post-trans	4 oz/A	28.0
Spartan	3 d post-trans	4 oz/A	28.2
Treflan + Goal	PPI + pre-trans	1.5 pt + 1.5 pt	24.8
LSD (p=0.05),			4.9

(calculated from all treatments (partial list above))

Carrot weed control: Dual Magnum on the central sands

• Dual Magnum	0.25 pt/A
• Dual Magnum	0.5 pt/A
• Dual Magnum	1.0 pt/A
• Dual Magnum + Lorox	0.5 pt/A + 1.0 lb/A
• Dual Magnum + Lorox	1.0 pt + 1.0 lb/A

- No injury observed in any treatment
- Label: use lower rate (0.5 pt/A) on medium textured soils

Carrot weed control

Dual Magnum 0.5 pt/A PRE +

Lorox 1.0 lb/A POST

Dual Magnum 1.0 pt/A PRE +

Lorox 1.0 lb/A POST

Carrot weed control

Treatment	Timing	Carrot injury	Carrot yield
		%	ton/A
Non-treated		0	21.3
Dual Magnum 0.5 pt/A + Lorox 1.0 lb/A	PRE + POST	5	22.5
Dual Magnum 1.0 pt/A + Lorox 1.0 lb/A	PRE + POST	0	23.6
Prowl H2O 1 qt/A + Lorox 1.0 lb/A	PRE + POST	21	19.7
Lorox 0.5 lb/A Lorox 1.0 lb/A	PRE + POST	14	20.3
	LSD (p = 0.05)	18	7.5

Carrot weed control

Treatment	Timing	Carrot injury	Carrot yield
		%	ton/A
Chateau 0.5 oz/A	POST	9	16.4
Chateau 1.0 oz/A	POST	13	20.0
Goal 2 oz/A	POST	6	14.0
Nortron 24 oz/A	POST	3	19.8
Define 9.6 oz/A	POST	6	19.6
Everest 0.6 oz/A	POST	13	16.6
Everest 0.4 oz/A	POST	16	16.9
	LSD (p = 0.05)	18	7.5

Carrot weed control

Dual Magnum (24c label)

- Single preemergence application
- Mineral soil 0.5 - 1.0 pt/a
- Muck soil (>20% OM) 1.33 – 2.0 pt/a
- POST Lorox application

Carrot weed control

Prowl H_2O – new label

- Single preemergence application (within 2 days after planting)
- 2.0 pt/a
- Field sandbur, common lambsquarters
- POST Lorox application

Table beets

- Minor injury (1-4%) from Pyramin treatments
- Injury increased when Pyramin was combined with Betanex (9% injury)
- Weed control was excellent in treatments including combinations of Roneet, Pyramin, and Betanex
- Crop safety was excellent with Dual Magnum, but weed control (velvetleaf) was reduced

Table beets

Untreated check

Dual Magnum + Pyramin

Table beets

- Nortron (ethofumesate)

Table beet stage	fl oz/a broadcast
Preemergence or PPI	60
Postemergence 2-leaf	5.25
Postemergence 4-leaf	5.25
Postemergence 6-8 leaf	10.5

  - 96 oz max / season
  - Moisture is critical to Nortron performance

Table beets

- Nortron – weeds controlled

Annual broadleaves	Annual grasses
C. lambsquarters	Barnyardgrass
C. Purslane	Green foxtail
Eastern black nightshade	Yellow foxtail
Redroot pigweed	Large crabgrass
Ladysthumb smartwd.	Y. Nutsedge – suppress.
Pennsylvania smartwd.	
Wild buckwheat	

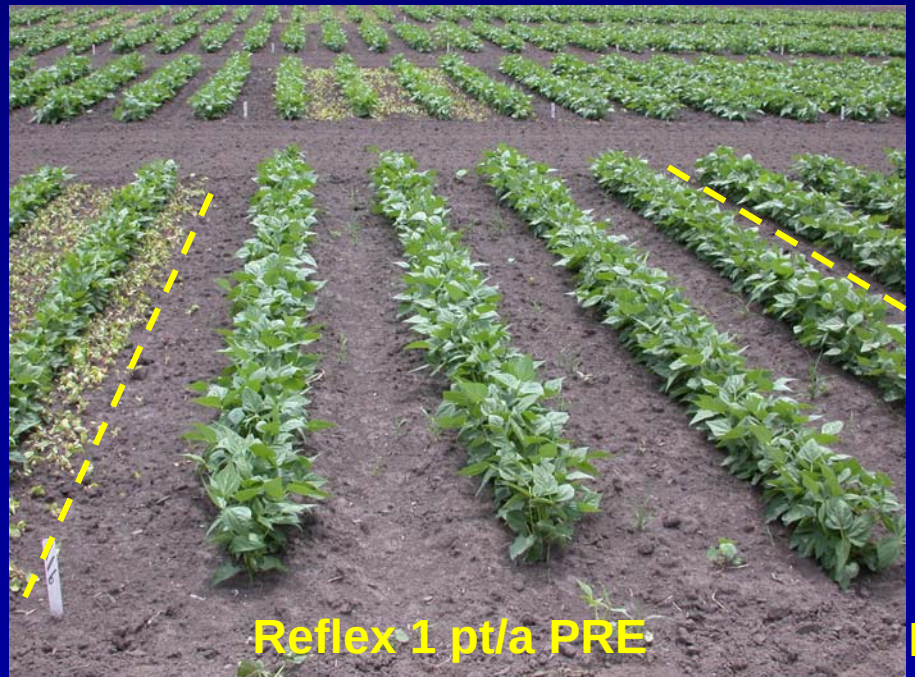
Snap beans

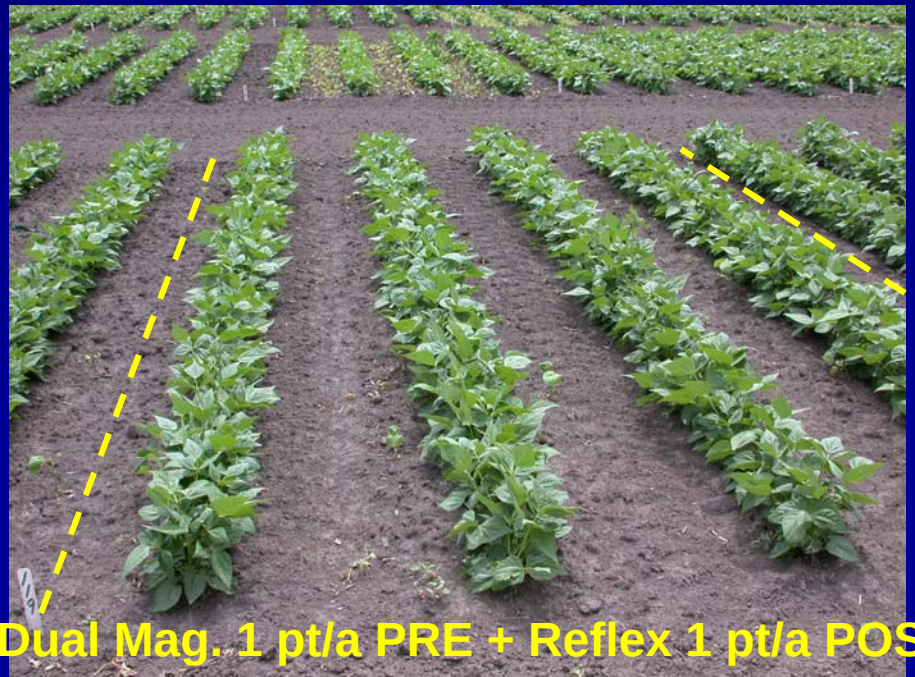
Reflex 1.0 pt/A

Reflex (fomesafen) - Arlington


Weedy Check


Reflex 1 pt/a + Dual Mag. 1 pt/a PRE


Reflex 1 pt/a PRE


Dual Mag. 1 pt/a PRE + Reflex 1 pt/a POST

Reflex (fomesafen) - Hancock

Wisconsin 2008 IR-4 Trials

Active Ingredient	pesticide class	commodity
Methoxyfenozide*(Intrepid)*	I	Carrot
Methoxyfenozide *(Intrepid)*	I	Radish
Spirotetramat *(Movento)*	I	Onion
Lambda-Cyhalothrin *(Warrior)*	I	Mustard Greens
Chlorantraniliprole *(Altacor)*	I	Snap Bean
Fenpyroximate *(Fujimite)*	I	Snap Bean
Spiromesifen *(Oberon)*	I	Melon
Spiromesifen *(Oberon)*	I	Cucumber
Emamectin *(Proclaim)*	I	Squash
Dinotefuran *(Venom)*	I	Cranberry (2 trials)
Flonicamid *(Beleaf)*	I	Strawberry
Ethoprop *(Mocap)*	I	Mint (2 trials)

Wisconsin 2008 IR-4 Trials

Active Ingredient	pesticide class	commodity
Fludioxonil + Azoxystrobin	F	Potato (post harvest)
Fenamidone *(Reason)*	F	Snap Bean (2 trials)
Fenamidone *(Reason)*	F	Lima Bean
Thiophanate-methyl *(Topsin-M)*	F	Snap Bean
Acibenzolar *(Actigard)*	F	Strawberry
S-Metolachlor *(Dual Magnum)*	H	Cantaloupe
Fomesafen *(Reflex)*	H	Cucumber
Quinclorac *(Facet)*	H	Cranberry (2 trials)
Simazine *(Princep)*	H	Strawberry