Weed Management Update: Vegetable Crops

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Snap Bean

- Acetochlor plant back to snap bean
  - Surpass label

Rotational Crop	Timing or Interval
corn (1)	Anytime - 0 months after application
alfalfa, barley, buckwheat, clover, dry beans (2), guar, kudzu, lentil, lespedeza, lupin (4), millet, pearl or proso, oats, pea (5), potatoes, rye, sorghum, soybeans, sugar beets, sunflower, trefoil, tobacco, triticale, vetch, wild rice	Spring following application (3)
wheat	4 months after application

Numbers within parentheses (-) in the table refer to Specific Rotational Crop Requirements below.

1. If crop treated with Surpass EC is lost, corn may be replanted immediately. Do not make a second application of Surpass EC.
2. Dry beans includes: adzuki, kidney, lima, navy, pinto
3. Approved rotation crops list does not include any species of succulent beans and peas
4. Lupin includes: grain, white, white sweet
5. Pea includes: blackeyed, chick, cow, Crowder, field, pigeon, Southern

IR-4 Acetochlor/Snap Bean

- Field trials began in 2009
  - Appl. of 3.0 lb ai/a at 270 and 300 days prior to planting snap bean (4 sites)
  - Residues must be <0.1 PPM
- Field trials began in 2012
  - WI, OH, GA, AR ➔ planted & harvested in 2013
  - Samples at lab

Prometryn – Carrot

Caparol 4L (Syngenta), Vegetable Pro (MANA)

Active ingred: Prometryn (Syngenta, others) – photosynthetic inhibitor
Activity: both contact burndown and residual
Weed spectrum: broad, including ragweeds, smartweeds, pigweeds, lambsquarters, barnyardgrass, crabgrass and foxtail spp.

Carrot

Caparol 4L can be applied preemergence and or postemergence over the top to carrot. Read and follow all directions for use in carrot.

Use Precautions for Pre and Postemergence Applications in Carrot

Apply up to three applications of Caparol 4L at the rate of 2 - 4 pt/A per application.

Do not exceed one preemergence at up to 4 pt/A and two postemergence applications each at up to 2 pt/A or one postemergence application at up to 4 pt/A per crop cycle.

Do not exceed 8 pt/A of Caparol 4L per crop cycle.

Make postemergence applications through the 6 leaf stage of carrot development.

Do not apply within 30 days of harvest.

Make uniform applications of the herbicide in a minimum of 20 gallons of water per acre.

When applying to emerged weeds add 2 qt of a nonionic surfactant (NIS) or wetting agent (approved for intended use) to 100 gal of spray mixture (0.5%) v/v or 1 gal of a non-phytotoxic crop oil concentrate (COC) containing 15-20% approved emulsifier to 100 gal of spray mixture (1% v/v).

Carrot

2013

Active Ingredient	Herbicide	Rate	Notes
Linuron	Lorox	Varies by soil type	PRE + POST
Pendimethalin	Prowl H20	2.0 pt/a	PRE
S-Metolachlor	Dual Magnum (24C)	Varies by soil type	PRE
Trifluralin	Treflan	1.0-2.0 pt/a	PPI
Metribuzin	Several avail.	Max. 0.5 lb ai/a	POST
Prometryn	Caparol 4L	Varies by timing	
Fluazifop-P-butyl	Fusilade	0.5-1.5 pt/a	Post – grasses
Clethodim	Select	Varies by formul.	Post – grasses
Sethoxydim	Poast	0.5-2.5 pt/a	Post – grasses

Future?

Active Ingredient	Herbicide	Rate	Notes
DCPA	Dacthal FL	2.0 pt/a	PRE
Ethofumesate	Ethotron SC	1.0-2.0 qt/a	PRE + POST

Garden Beet

2013

Active Ingredient	Herbicide	Rate	Notes
Cycloate	Ro-Neet 6E	0.5-0.66 gal/a	PPI - grasses
~~Pyrazon~~	~~Pyramin DF~~	~~4.6-5.4 lb/a~~	~~PRE - bdlves~~
S-Metolachlor	Dual Magnum (24C)	0.67-1.33 pt/a	PRE – grass/bdlves
Ethofumesate	Nortron SC/Ethotron SC	5.2-60 oz/a	PRE + POST
~~Desmedipham~~	~~Alphanex~~	~~1.5-3.0 pt/a~~	~~POST - bdlves~~ Not RRPW
Phenmedipham	Spin-Aid		POST – bdlves
~~Des+Phenmedipham~~	~~Phen-Des 8+8~~	~~1.5-3.0 pt/a~~	~~POST bdlves~~ Not RRPW
Clopyralid	Stinger	0.25-0.5 pt/a	POST - bdlves
Sethoxydim/Clethodim	Poast/Select	vaires	POST - grasses
Triflusulfuron-methyl	UpBeet	0.5 oz/a	POST - bdlves

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
WI-130001

This label expires and must not be distributed or used in accordance with this SLN registration after December 31, 2017

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 LLC AND NOT SPECIFIED BY U.S. EPA OR THE STATE OF WISCONSIN

FOR CONTROL OF WEEDS IN TRANSPLANTED BELL AND NONBELL PEPPER (EXCLUDING TABASCO), TRANSPLANTED BROCCOLI, TRANSPLANTED BRUSSELS SPROUT, TRANSPLANTED CABBAGE, TRANSPLANTED CAULIFLOWER, TRANSPLANTED CHINESE CABBAGE (NAPA), CARROT, TRANSPLANTED CELERY, CUCUMBER, DRY BULB ONION, TRANSPLANTED EGGPLANT, DAIKON RADISH, GARDEN BEET, PARSNIP, RADISH, TURNIP, RUTABAGA, LEEK, GREEN ONION, SPINACH, AND SWISS CHARD.

USE OF DUAL MAGNUM (THE "PRODUCT") ON CROPS LISTED (THE "CROP") FOR THIS SPECIAL LOCAL NEED MAY RESULT IN CROP INJURY, CROP YIELD REDUCTION AND/OR CROP LOSS AS FURTHER DISCUSSED BELOW. READ AND UNDERSTAND THESE CONDITIONS AND RISKS OF USE FOR SPECIAL LOCAL NEED BEFORE USING THE PRODUCT ON THE CROP. SYNGENTA RECOMMENDS THAT THE USER TEST THIS PRODUCT TO DETERMINE ITS SUITABILITY FOR SUCH INTENDED USE.

Dual Magnum

DAIKON RADISH, GARDEN BEET, PARSNIP, RADISH, TURNIP, RUTABAGA

Make a single broadcast application of Dual MAGNUM at 0.67 - 1.0 pt./A preplant incorporated, preplant surface applied, or preemergence to clean-tilled soil. Use lower rates on coarse-textured soils and higher rates on fine-textured soils. If the soil organic matter is 20% or greater (muck soils), use Dual MAGNUM at a rate up to 1.33 pt./A. In general, the risk of crop injury from the use of Dual MAGNUM is greater from preplant incorporated than from preplant non-incorporated or preemergence applications. Irrigate after application to activate the herbicide if rainfall is not expected, but use only 0.5 inches of water to incorporate the herbicide.

Precautions:

1. Excessive irrigation will increase the risk of crop injury.
2. Mechanical incorporation of Dual MAGNUM will increase the risk of crop injury.
3. It is recommended not use Dual MAGNUM if the planting operation creates a furrow or trough over the seed-row into which rain or irrigation water will collect and thus concentrate the herbicide over the row.
4. Not recommended on coarse textured soils with less than 1.5 % OM, as use in these soils increases the risk of crop injury.
5. In soils with greater than 10% organic matter, weed control may be reduced.

Restrictions:

1. Make only one application of Dual MAGNUM per crop.
2. Do not apply more than 1.33 pt./A of Dual MAGNUM per crop.
3. Harvest these crops at normal timing.

Upbeet

DUPONT™ UPBEET® HERBICIDE

EPA Reg. No. 352-569

FOR POSTEMERGENCE WEED CONTROL IN GARDEN BEETS

This supplemental label expires May 14, 2014 and must not be used or distributed after this date.

DuPont™ UPBEET® herbicide may be used in Garden Beets for selective postemergence control of broadleaf weeds including wild mustard, shepard's-purse, and velvetleaf.

This product is a water dispersible granule containing 50% active ingredient by weight.

It is a violation of Federal law to use this product in a manner

WEED STAGE AT APPLICATION
Weeds should be actively growing and not under stress. Applications made to larger weeds or to weeds under stress may result in unsatisfactory control.

Since UPBEET® has little to no soil activity, only weeds that have emerged above the soil surface will be controlled.

DIRECTIONS FOR USE

Apply UPBEET® at a broadcast rate of 0.5 ounces per acre, starting when garden beets are at the 2 to 4 leaf stage. Additional applications may be made at the 4 to 6 leaf stage and at the 6 to 8 leaf stage.

The total amount of UPBEET® applied must not exceed 1.5 ounces per acre per growing season.

For best results apply UPBEET® to small actively growing weeds when the temperature is between 40F and 75F. Do not treat when frost is expected in the hours following application.

Beet Herbicide Efficacy Trials

Locations:	Arlington Ag Research Station Mortenson Bros. Farm – Plover, WI

Plover Location

Soil Type:	Meehan Loamy Sand; OM 1.5-2.5%
Varieties:	Ruby Queen, Detroit Supreme, Red Ace, Red Titan
Date Planted:	5/20/13
Row Spacing:	19” (avg.)
Plot Design:	6’ x 20’, 4 Reps with each beet variety comprising one row of the plot
Rating Dates:	6/10, 6/18, 6/24, 7/1, 7/8, 8/14
Harvest:	8/23/13


2-LF + 1 wk.
2-LF + 2 wk.
Untreated Check
4-LF + 1 wk.
6-LF + 1 wk.
RQ
DS
RA
RT

Dual Magnum	0.75	PT/A	PRE
Ethotron	40	OZ/A	PRE
Ethotron	5.25	OZ/A	2-LF
Upbeet	0.13	OZ/A	2-LF
COC	0.25	% V/V	2-LF
Spin-Aid	12	OZ/A	4-LF
Ethotron	3	OZ/A	4-LF
Upbeet	0.13	OZ/A	4-LF
Stinger	4	OZ/A	4-LF
Spin-Aid	16	OZ/A	6-LF
Ethotron	4	OZ/A	6-LF
Upbeet	0.25	OZ/A	6-LF
Stinger	4	OZ/A	6-LF

Ro-Neet	4	PT/A	PPI
Ethotron	1	PT/A	PRE
Ethotron	5.25	OZ/A	2-LF
Upbeet	0.13	OZ/A	2-LF
COC	0.25	% V/V	2-LF
Spin-Aid	12	OZ/A	4-LF
Ethotron	3	OZ/A	4-LF
Upbeet	0.13	OZ/A	4-LF
Stinger	4	OZ/A	4-LF
Spin-Aid	16	OZ/A	6-LF
Ethotron	4	OZ/A	6-LF
Upbeet	0.25	OZ/A	6-LF
Stinger	4	OZ/A	6-LF

Zidua	0.5 OZ/A	PRE
Ethotron	5.25 OZ/A	2-LF
Stinger	4 OZ/A	2-LF
MSO	0.63 % V/V	2-LF
Ethotron	5.25 OZ/A	4-LF
Stinger	4 OZ/A	4-LF
MSO	0.63 % V/V	4-LF

Zidua

- ai: Pyroxasulfone – BASF – 0.85 WG
- Root & shoot inhibitor mode of action
- Controls a number of grasses and broadleaves including pigweed species (common, smooth, waterhemp)

RQ DS RA RT


2-LF + 1 wk.
2-LF + 2 wk.
Dual Magnum 0.75 PT/A PRE
Ethotron 40 OZ/A PRE
Chateau 1 OZ/A 2-LF
NIS 0.25 % V/V 2-LF
4-LF + 1 wk.
6-LF + 1 wk.
RQ
DS
RA
RT

Top-yielding treatments across all varieties

4	Ro-Neet	6	EC	4 PT/A	PPI
	Ethotron	4	SC	1 PT/A	PRE
	Ethotron	4	SC	5.25 OZ/A	2-LF
	Upbeet	50	WDG	0.13 OZ/A	2-LF
	COC		L	0.25 % V/V	2-LF
	Spin-Aid	1.3	EC	12 OZ/A	4-LF
	Ethotron	4	SC	3 OZ/A	4-LF
	Upbeet	50	DF	0.13 OZ/A	4-LF
	Stinger	3	SL	4 OZ/A	4-LF
	Spin-Aid	1.3	EC	16 OZ/A	6-LF
	Ethotron	4	SC	4 OZ/A	6-LF
	Upbeet	50	DF	0.25 OZ/A	6-LF
	Stinger	3	SL	4 OZ/A	6-LF

7	Dual Magnum	7.62	EC	0.75 PT/A	PRE
	Ethotron	4	SC	1 PT/A	PRE
	Ethotron	4	SC	3 OZ/A	2-LF
	Spin-Aid	1.3	EC	12 OZ/A	2-LF
	Upbeet	50	WDG	0.13 OZ/A	2-LF
	Spin-Aid	1.3	EC	12 OZ/A	4-LF
	Ethotron	4	SC	3 OZ/A	4-LF
	Upbeet	50	DF	0.13 OZ/A	4-LF
	Stinger	3	SL	4 OZ/A	4-LF
	Spin-Aid	1.3	EC	16 OZ/A	6-LF
	Ethotron	4	SC	4 OZ/A	6-LF
	Upbeet	50	DF	0.25 OZ/A	6-LF
	Stinger	3	SL	4 OZ/A	6-LF

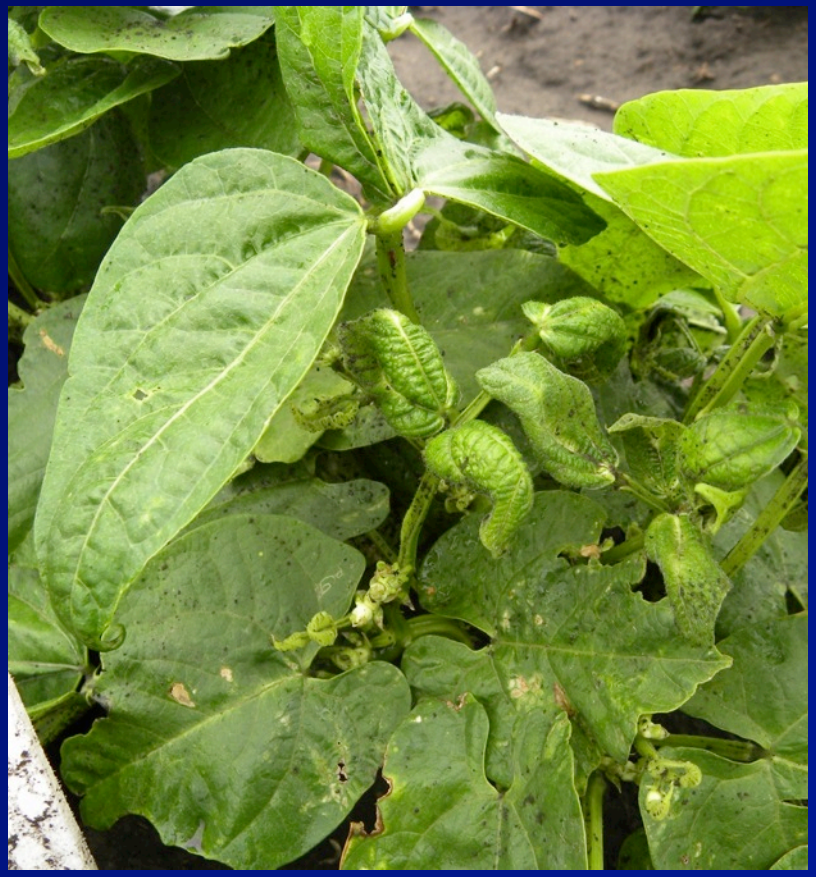
5	Dual Magnum	7.62	EC	0.75 PT/A	PRE
	Ethotron	4	SC	40 OZ/A	PRE
	Ethotron	4	SC	5.25 OZ/A	2-LF
	Upbeet	50	WDG	0.13 OZ/A	2-LF
	COC		L	0.25 % V/V	2-LF
	Spin-Aid	1.3	EC	12 OZ/A	4-LF
	Ethotron	4	SC	3 OZ/A	4-LF
	Upbeet	50	DF	0.13 OZ/A	4-LF
	Stinger	3	SL	4 OZ/A	4-LF
	Spin-Aid	1.3	EC	16 OZ/A	6-LF
	Ethotron	4	SC	4 OZ/A	6-LF
	Upbeet	50	DF	0.25 OZ/A	6-LF
	Stinger	3	SL	4 OZ/A	6-LF

8	Dual Magnum	7.62	EC	0.75 PT/A	PRE
	Spin-Aid	1.3	EC	1 PT/A	2-LF
	Ethotron	4	SC	5.25 OZ/A	2-LF
	Spin-Aid	1.3	EC	1.5 PT/A	4-LF
	Ethotron	4	SC	5.25 OZ/A	4-LF
	Ethotron	4	SC	10.5 OZ/A	6-LF
	Stinger	3	SL	6 OZ/A	6-LF
	Upbeet	50	WDG	0.5 OZ/A	6-LF
	COC		L	0.25 % V/V	6-LF

Lessons from 2013 garden beet trials

- The loss of a.i. desmedipham (Alphanex, Betanex) is not catastrophic
- Varietal response to herbicides generally minor
  - Exception: Curbit/Detroit Supreme
- Triflusulfuron-methyl (UpBeet) provided excellent velvetleaf control
- Clopyralid (Stinger) in a single appl. had increased crop safety over a split-appl.

Simulated off-target synthetic auxins in vegetables



- Synthetic auxin-resistant agronomic crops currently in regulatory evaluation
- If approved, anticipated commercial use within a couple of seasons
- Specialty crop producers concerned about off-target movement

Off-target synthetic auxins: vegetable research summary

- Observations of visible injury aren't a good indicator of yield or quality risk
- Regardless of visible injury, harvested crop is subject to pesticide residue limits
- Stewardship programs must also consider weed resistance, not just off-target risks

Common waterhemp

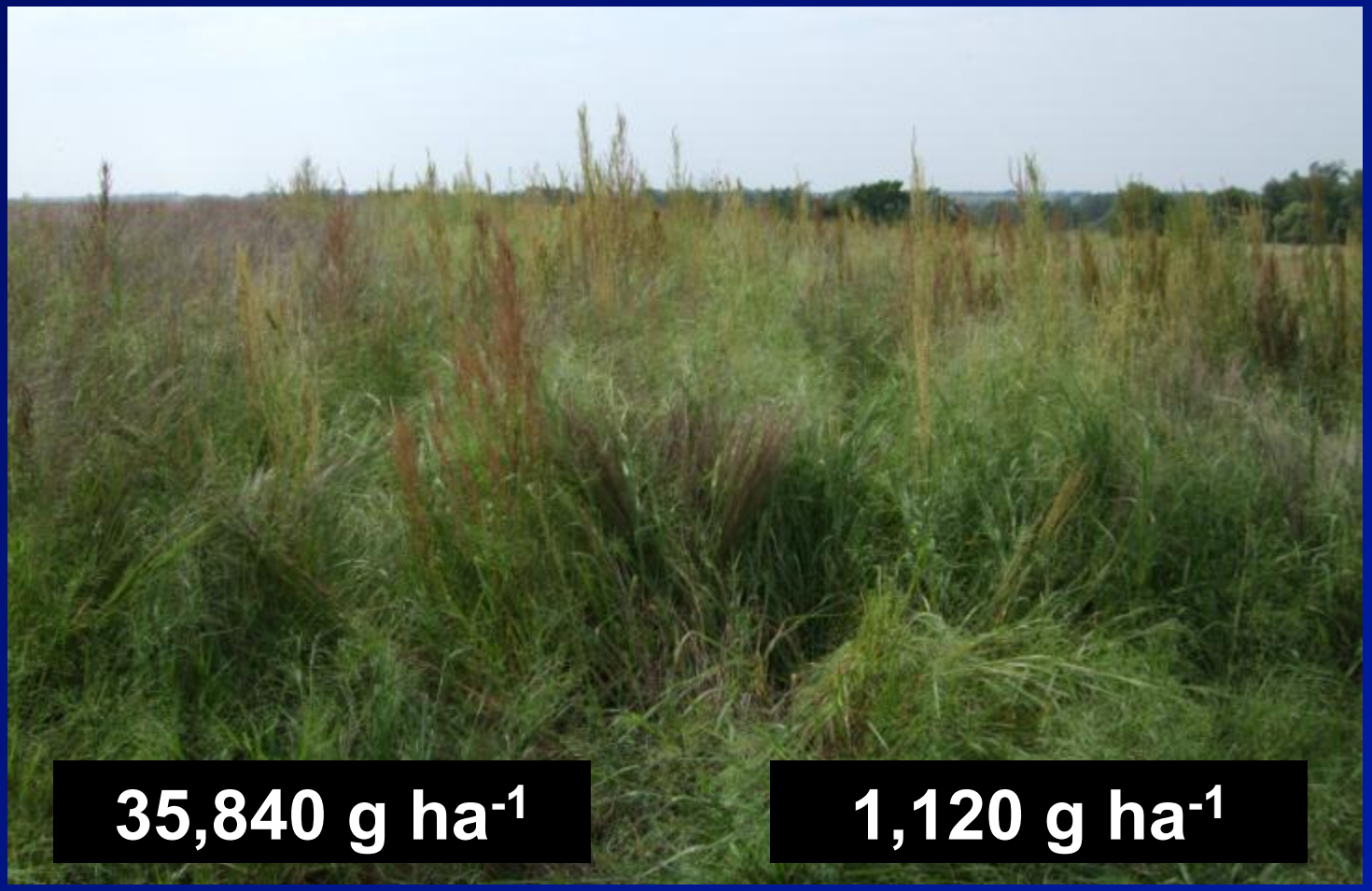


Photo courtesy Univ. of Nebraska, Kruger

Susceptible Population

Resistant Population

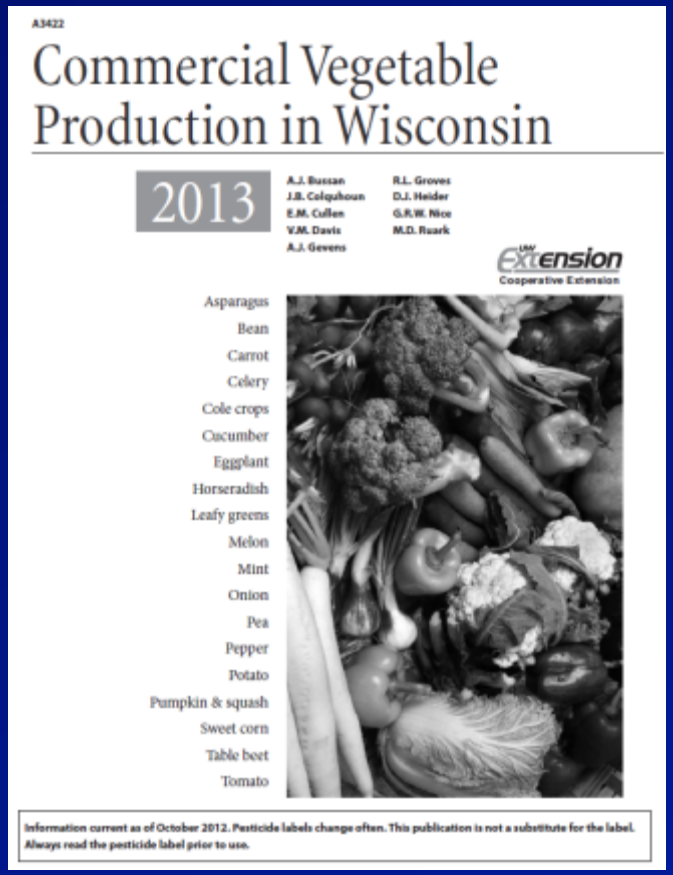
0 18 35 70 140 280 560 1120 2240

2,4-D dose, g ae ha^{-1}

Photo courtesy Univ. of Nebraska, Kruger

Seed potatoes: glyphosate and other herbicides

UWEX Publications



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Commercial Vegetable Production in Wisconsin

2013

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UW Extension Cooperative Extension

Asparagus
Bean
Carrot
Celery
Cole crops
Cucumber
Eggplant
Horseradish
Leafy greens
Melon
Mint
Onion
Pea
Pepper
Potato
Pumpkin & squash
Sweet corn
Table beet
Tomato

Information current as of October 2012. Pesticide labels change often. This publication is not a substitute for the label. Always read the pesticide label prior to use.

http://learningstore.uwex.edu/assets/pdfs/A3422.PDF