Chapter 6 – Weed Control in Potato

This chapter is intended to provide herbicide information for weed control in potato. Potato herbicide management programs are grouped into two main phases: 1) planting to potato emergence and 2) potato emergence to row closure.

Recommendations and Considerations:

1. Planting to Emergence.

Effective weed control in potato requires that all weeds be controlled prior to potato emergence. The duration from planting to potato emergence is approximately four weeks and during this time weeds emerge, but there is no crop competition. **Table 6A** provides the effectiveness of soil-applied herbicides and **Table 6B** provides important information on each herbicide.

2. Emergence to Row Closure.

The time from potato emergence to row closure is approximately four weeks and postemergence herbicide applications should be made during this time. If postemergence herbicide applications are made after row closure potato foliage will interfere with adequate spray coverage of weeds. There are many choices for postemergence grass weed control, however postemergence broadleaf weed control options are limited. Given this, some soil-applied residual herbicides (for example Dual Magnum) may be tank-mixed with a postemergence herbicide application for residual broadleaf and grass weed control. **Table 6A** provides the effectiveness of postemergence herbicides and **Table 6B** provides important information on each herbicide.

3. Vine Desiccation.

Desiccating potato vines ensures good tuber separation from stolons during harvest, allows for adequate tuber skin set, and aids in the overall efficiency of harvest. Many factors impact vine kill, including herbicide choice, potato variety, and timing. **Table 6C** provides important information on herbicides used to desiccate potato vines.

4. Rotation restrictions.

Prior to herbicide use it is always important to determine if the herbicide application that you make this year may affect your crop rotation plan for the following years. **Table 12** provides a complete listing of crop rotation restrictions for all potato herbicides.

Abbreviations for this chapter:

Herbicide Formulations: Table 14
Herbicide Sites of Action: Pages 14-15

Application Timings:

PPI = preplant incorporated
PRE = preemergence
POST = postemergence

Units of Measure:

fl oz = fluid ounces
lb = pounds
oz = ounces
pt = pints
qt = quarts
% v/v = % volume/volume

Additives:

AMS = ammonium sulfate
COC = crop oil concentrate
MSO = methylated seed oil
NIS = non-ionic surfactant

Potato Traits:

N = no specific trait required

TABLE 6A — Weed Response to Herbicides in Potatoes*

Preplant Incorporated	Site of Action	Crop Tolerance**	Annual Broadleaves										Annual Grasses								Perennials				
			Cocklebur	Jimsonweed	Lambsquarters	Nightshade (E. black)	Pigweed	Ragweed (Common)	Smartweed	Velvetleaf	Wild mustard	Wild buckwheat	Barnyardgrass	Crabgrass	Giant foxtail	Green foxtail	Yellow foxtail	Fall panicum	Witchgrass	Sanbar	Bindweed (Field)	Bindweed (Hedge)	Canada thistle	Quackgrass	Yellow nutsedge
Eptam	15	1	P	P	**G**	F	F	F	F	F	F	P	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**G**	N	N	N	F	F
Sonalan HFP	3	1	P	P	**G**	F	F	F	F	F	P	P	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**G**	N	N	N	N	N
Preemergence																									
Boundary	5/15	2	F	F	**E**	F	**E**	**G**	**E**	**G**	**E**	**G**	**E**	**E**	**E**	**E**	**E**	**G**	**G**	F	N	N	N	N	**G**
Dual Magnum/Others	15	2	N	N	P	F	**G**	P	P	N	P	P	**E**	**E**	**E**	**E**	**E**	**G**	**G**	F	N	N	N	N	**G**
Lorox/Linex	5	1	P	P	**G**	F	**E**	**G**	**G**	F	**G**	F	F	F	F	F	F	F	F	P	N	N	N	N	N
Martix	2	1	**G**	F	F	P	**E**	F	F	F	**E**	F	**G**	F	**G**	**G**	**G**	F	F	P	N	N	P	P	P
Metribuzin	5	2	F	F	**E**	N	**E**	**G**	**E**	**G**	**E**	**G**	P	F	**G**	**G**	**G**	F	F	P	N	N	N	N	N
Outlook[a]	15	2	N	N	P	**G**	**G**	P	P	N	P	P	**E**	**E**	**E**	**E**	**E**	**G**	**G**	P	N	N	N	N	F
Preview 2.1	5/14	2	F	F	**E**	**G**	**E**	**G**	**E**	**G**	**E**	**G**	P	F	F	P	P	F	P	P	N	N	N	N	N
Prowl H_20/Prowl	3	1	N	N	**G**	P	F	P	P	F	P	P	**G**	**G**	**G**	**G**	**G**	**G**	**G**	**G**	N	N	N	N	N
Reflex	14	2	P	F	P	**G**	**E**	**G**	P	P	**E**	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sequence	9/15	2	N	N	P	F	**G**	P	P	N	P	P	**E**	**E**	**E**	**E**	**E**	**G**	**G**	F	N	N	N	N	**G**
Zidua	15	2	P	F	F	**G**	**E**	F	F	F	F	F	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**G**	N	N	N	N	F
Postemergence																									
Matrix[a]	2	1	**G**	P	F	F	**E**	F	F	F	**E**	**G**	**G**	**G**	**G**	**G**	**G**	**G**	**G**	**G**	N	N	F	F	F
Metribuzin	5	2	**G**	F	**E**	N	**G**	**E**	**E**	**G**	**E**	F	P	P	F	F	F	F	F	P	N	N	N	N	N
Select MAX	1	1	N	N	N	N	N	N	N	N	N	N	**E**	**G**	**E**	**E**	**E**	**E**	**E**	**E**	N	N	N	**G**	N

Herbicide Site of Action: The site of action key is located on pages 14-15.

Herbicide Effectiveness: P = Poor; F = Fair; **G** = Good; **E** = Excellent; N = None; – = Not enough information to rank

* The above ratings are a relative comparison of herbicide effectiveness. Weather conditions greatly influence the herbicide's effectiveness, and weed control may be better under favorable conditions or poorer under unfavorable conditions.

** Crop Tolerance: 1=Minimal risk of crop injury; 2=Crop injury can occur under certain conditions (soil applied—cold, wet: foliar applied—hot, humid); 3=Severe crop injury can occur. Follow precautions under Remarks and Limitations and on the label; 4=Risk of severe crop injury is high.

[a] Fair to good control of hairy nightshade.

TABLE 6B — Potato Herbicides – Remarks and Limitations

Herbicide	Common Name	Site of Action Number	Application Timing	Rate/A	Trait
Boundary 6.5EC	s-metolachlor + metribuzin	15 5	PRE	1.5 pt	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- Boundary 6.5EC at 1.5 pt/A contains 1 pt/A Dual Magnum + 5 oz/A metribuzin.
- Potato varieties can vary in their response to metribuzin – consult seed company.
- Boundary 6.5EC may be tank-mixed with other soil-applied herbicides for improved control of certain weeds.
- DO NOT apply more than 1 lb ai/A per year of metribuzin.
- DO NOT use on muck or peat soils.
- DO NOT apply Boundary 6.5EC within 60 days of potato harvest.
- Tank-mixtures and/or sequential program are needed for a complete weed control program.
- Refer to label and Table 12 for crop rotation restrictions.

Dual Magnum 7.62EC **Dual II Magnum**	s-metolachlor	15	PPI, PRE	1.33 pt	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- Can be tank-mixed with other soil-applied herbicides for improved control of certain weeds.
- Can be applied postemergence after hilling or drag-off, but this application will not control emerged weeds.
- DO NOT apply more than 3.6 pt/A per year.
- DO NOT use on muck or peat soils.
- DO NOT harvest potatoes within 60 days of preemeregence application and 40 days of postemergence applications.
- Tank-mixtures and/or sequential programs are needed for a complete weed control program.
- Refer to label and Table 12 for crop rotation restrictions.

Eptam 7EC	EPTC	15	PPI	4.5 pt	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- Work into soil immediately after application.
- Increase the rate to 6.75 pt/A for nutsedge control.
- DO NOT exceed 14 pt/A Eptam per crop.
- Tank-mixtures and/or sequential programs are needed for a complete weed control program.
- Refer to label and Table 12 for crop rotation restrictions.

Lorox DF 50DF	linuron	5	PRE	1.5 lb	N
Linex 4L	linuron	5	PRE	1.5 pt	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- Can be tank-mixed with other soil-applied herbicides for improved control of certain weeds.
- Can be applied postemergence after hilling or drag-off, but this application will not control emerged weeds.
- DO NOT apply more than 3.6 pt/A per year.
- DO NOT use on muck or peat soils.
- DO NOT harvest potatoes within 60 days of preemeregence application and 40 days of postemergence applications.
- Tank-mixtures and/or sequential programs are needed for a complete weed control program.
- Refer to label and Table 12 for crop rotation restrictions.

Matrix SG 25WG	rimsulfuron	2	PRE	1.5 oz	N
			POST	1 oz + NIS 0.25% v/v	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- Rainfall or irrigation of 1/3 to 1 inch is needed within 5 days of application to achieve the greatest activity.
- Matrix may be tank-mixed with other soil-applied herbicides for improved control of certain weeds.
- Apply to small weeds (<1 inch in height or diameter).
- Postemergence applications may cause some temporary yellowing.
- Matrix can be tank-mixed with Metribuzin at 0.25 to 0.67 lb/A for improved control of certain weeds – apply with 0.125% v/v NIS. Refer to the remarks and limitations section for Metribuzin.
- DO NOT exceed 2.5 oz/A per acre per crop season.
- DO NOT apply Matrix within 30 days of potato harvest.
- Tank-mixtures and/or sequential programs are needed for a complete weed control program.
- Refer to label and Table 12 for crop rotation restrictions.

TABLE 6B — Potato Herbicides – Remarks and Limitations

Herbicide	Common Name	Site of Action Number	Application Timing	Rate/A	Trait
Metribuzin 75DF, others	metribuzin	5	PRE	0.67 lb	N
			POST	0.33 lb	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- Under adverse weather conditions (cool-wet) – crop injury can occur and may be more pronounced with specific varieties.
- Metribuzin may be tank-mixed with other soil-applied herbicides for improved control of certain weeds.
- Metribuzin will not provide control of triazine-resistant common lambsquarters.
- Can be applied in split-applications (once preemergence and once postemergence).
- Apply to small weeds (<1 inch in height or diameter).
- NOT RECOMMENDED postemergence on early maturing smooth skinned white and all red skinned varieties. Atlantic, Bellchip, Centennial, Chipbelle, Shepody, and Superior varieties are all sensitive to postemergence applications of metribuzin.
- Metribuzin can be tank-mixed with Matrix at 1 oz/A for improved control of certain weeds – apply with 0.125% v/v NIS.
- DO NOT exceed 1.33 lb/A per acre per crop season.
- DO NOT apply within 60 days of potato harvest.
- Tank-mixtures and/or sequential programs are needed for a complete weed control program.
- Refer to label and Table 12 for crop rotation restrictions.

Outlook 6L	dimethenamid-P	15	PRE	14 fl oz	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- Outlook rates range from 12 to 18 fl oz/A (coarse textured soils) and 18 to 21 fl oz/A (medium- to fine-textured soils).
- DO NOT incorporate.
- DO NOT apply more than one application of Outlook per acre per year.
- Under cold or wet conditions, applications of Outlook may result in delayed emergence or early season stunting.
- DO NOT apply within 40 days of potato harvest.
- Tank-mixtures and/or sequential program are needed for a complete weed control program.
- Refer to label and Table 12 for crop rotation restrictions.

Preview 2.1 3.35SC	metribuzin + sulfentrazone	5 14	PRE	13.5 fl oz	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- DO NOT apply to emerged potato plants – severe crop injury will occur.
- Under adverse weather conditions (cool-wet) – crop injury can occur and may be more pronounced with specific varieties.
- Potato varieties may vary in their response to Preview 2.1 – consult seed company.
- Preview 2.1 may be tank-mixed with other soil-applied herbicides for improved control of certain weeds.
- Tank-mixtures and/or sequential programs are needed for a complete weed control program.
- Corn may be replanted 4 months after a fall application of Preview 2.1.
- The rotation interval to sugarbeets is 24 months if a successful bioassay is completed.
- Refer to label and Table 12 for crop rotation restrictions.

Prowl H_2O 3.8CS	pendimethalin	3	PRE	1.6 pt	N
Prowl 3.3EC	pendimethalin	3	PRE	1.8 pt	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- Can be tank-mixed with other soil-applied herbicides for improved control of certain weeds.
- Can be applied early postemergence to the 6-inch stage of growth, but this application will not control emerged weeds.
- DO NOT apply more than one application of Prowl H_2O/Prowl per acre per year.
- Tank-mixtures and/or sequential programs are needed for a complete weed control program.
- Refer to label and Table 12 for crop rotation restrictions.

Reflex 2L	fomesafen	14	PRE	1 pt	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- DO NOT apply to emerged potato plants – severe crop injury will occur.
- Potato varieties may vary in their response to Reflex – consult seed company.
- Reflex may be tank-mixed with other soil-applied herbicides for improved control of certain weeds.
- DO NOT apply Reflex to the same field in consecutive years.
- Tank-mixtures and/or sequential programs are needed for a complete weed control program.
- Refer to label and Table 12 for crop rotation restrictions.

TABLE 6B — Potato Herbicides – Remarks and Limitations

Herbicide	Common Name	Site of Action Number	Application Timing	Rate/A	Trait
Select Max 0.97EC	clethodim	1	POST	9 fl oz + COC 1% v/v	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- Apply to grasses up to 8 inches tall (crabgrass up to 6 inches).
- Select Max at 6 oz/A will control 1 to 4 inch tall barnyardgrass, green and giant foxtails, and fall panicum.
- Volunteer cereals need to be treated between 2 to 6 inches tall.
- The addition of AMS (2.5 to 4 lb/A) has been shown to improve control of difficult weeds – e .g ., quackgrass, johnsongrass, and volunteer cereals.
- There is more adjuvant flexibility with Select Max tank-mixtures. Consult label.
- DO NOT apply within 30 days of potato harvest.
- Refer to label and Table 12 for crop rotation restrictions.

Sequence 2.25L	glyphosate + s-metolachlor	9 15	PRE	3.5 pt + AMS 17 lb/100 gal	N

- Sequence at 3.5 pt/A contains 0.9 lb a.e./A of glyphosate and 1.2 pt/A of Dual Magnum.
- DO NOT apply to emerged potatoes – severe injury will occur.
- Refer to Table 6A for residual weed control and crop tolerance ratings.
- DO NOT apply more than 4 pt/A per season.
- DO NOT apply within 60 days of potato harvest.
- Refer to label and Table 12 for crop rotation restrictions.

Sonalan HFP 3L	ethalfluralin	3	PPI	2 pt	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- Work into soil immediately after application.
- Sonalan HFP rates range from 1.33-2 pt/A (coarse textured soils), 2-2.66 pt/A (medium textured soils), and 2.66 pt/A (fine textured soils).
- DO NOT exceed 2.66 pt/A per year.
- Tank-mixtures and/or sequential programs are needed for a complete weed control program.
- Refer to Table 12 for crop rotation restrictions.

Zidua SC 4.17SC	pyroxasulfone	15	PRE	2.5 fl oz	N

- Refer to Table 6A for weed control and crop tolerance ratings.
- Zidua can be tank-mixed with other soil-applied herbicides for improved control of certain weeds.
- There should always be at least 2 inches of soil between the seed pieces/new shoots and the herbicide to avoid crop injury.
- Application rate varies with soil texture from 2.5 to 3.25 fl oz/A.
- DO NOT apply more than 2.5 fl oz/A on coarse or 3.25 fl oz/A on medium and fine textured soils of Zidua SC.
- Tank-mixtures and/or sequential programs are needed for a complete weed control program.
- Refer to Table 12 for crop rotation restrictions.

TABLE 6C — Vine Desiccation in Potatoes

Herbicide	Common Name	Site of Action Number	Application Timing	Rate/A	Trait
Aim 2EC	carfentrazone	14	Desiccation	3.2 fl oz + MSO 1% v/v	N

- Apply from 3.2 to 5.8 fl oz/A for best results.
- COC (1% v/v) or NIS (0.25% v/v) may be used instead of MSO.
- DO NOT apply more than 11.6 fl oz/A per year.
- Aim is not as effective as Reglone or Rely.
- Sequential applications may be needed — thorough coverage is required.
- DO NOT harvest within 7 days of application.

Reglone 2L	diquat	22	Desiccation	1-2 pt + NIS 0.25% v/v	N

- Make a second application of 1-2 pt/A a minimum of 5 days later if vine growth is dense.
- A total of 4 pt/A may be applied, with no more than 2 pt/A at a single application. Allow 5 days between applications.
- Apply at 50 psi or less in 20-100 gal clean water/A. Greater water volumes will provide more thorough coverage of heavy vine growth.
- Apply at least 7 days before harvest.
- DO NOT apply to drought-stressed potatoes.
- No soil persistence. A cover crop can be planted immediately.

Rely 2.34L	glufosinate	10	Desiccation	21 fl oz + AMS 17 lb/100 gal	N

- DO NOT use to desiccate potatoes that are being used for seed.
- Apply at a total volume of 20-100 gal water/A with ground equipment.
- Increase spray volume to at least 30 gal water/A when the potato vine canopy is dense or under cool and dry conditions.
- Requires a rainfree period for 4 hours after application.
- DO NOT make more than one application per harvest.
- Apply at least 9 days before harvest.

Vida 0.21EC	pyraflufen	14	Desiccation	5.5 fl oz + COC 1% v/v	N

- Apply from 2.5 to 5.5 fl oz/A for best results.
- Vida is not as effective as Reglone or Rely.
- Use an approved agricultural buffering agent buffering to pH 7.5 or less if using Vida in a water source of > pH 7.5.
- A total of 11 fl oz/A may be applied, with no more than 5.5 fl oz/A at a single application. Allow 7 days between applications.
- Make a second application a minimum of 7 days later if vine growth is dense.
- Tank-mixing or sequential applications with other vine desiccation products result in enhanced control.
- Apply in 20 to 50 gal water/A with ground equipment.
- Apply at least 7 days before harvest.