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Herbicides for Weed Control In Commercial Potatoes

C. V. Eberlein and R. H. Callihan

Weeds reduce potato yield and quality by competing for light, water and nutrients, and by interfering with harvest operations. Developing an effective weed control program in potatoes requires careful consideration of such factors as the weed species present in the field, soil characteristics, tillage and irrigation practices and crop rotation. A combination of cultural practices and the use of appropriate herbicides usually gives the most effective weed control. Cultural practices and general principles for the use of herbicides are discussed in University of Idaho Extension Bulletin 695, *Cultural and Chemical Practices for Commercial Potato Weed Control*. Herbicides registered for use in potatoes are summarized in this bulletin.

Selecting a Herbicide

Factors important in choosing a herbicide include:

- Label approval for use
- Weed species present
- Variety tolerance
- Potential for soil residues that may affect other crops in the rotation
- Soil texture, pH and organic matter
- Tillage practices

- Irrigation practices
- Application and incorporation equipment available
- Potential for drift
- Herbicide performance
- Herbicide cost

Proper application of herbicides is essential to obtain good weed control and to minimize potato injury. Herbicide rates must be adjusted for soil texture, percent organic matter, soil pH, weed species, potential for soil residue and for other herbicides that may be used in combination. Herbicide mixtures may be used to overcome the limitations of single chemicals. Appropriate mixtures may (1) control a broader spectrum of weeds, (2) give more consistent performance with varying soil and weather conditions, (3) reduce soil residue problems, (4) give full-season weed control and (5) reduce the potential for crop injury. See Table 1 starting on next page for labeled tank-mixtures of herbicides for use in potatoes.

Rate ranges for herbicides labeled for use in potatoes are also given in Table 1. Always consult the herbicide label for specific rates, directions for use and for precautions for applying the herbicide. Additional information on sprayer calibration and herbigation in potatoes can be found in Extension Bulletin 695.



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Table 1. Summary of herbicides for weed control in commercial potatoes.

Herbicide	Application and remarks
Volunteer Grain or Cover Crop Control Before Planting Potatoes	
paraquat (Gramoxone Super)	
Rate:	0.28 to 0.47 lb ai/acre ¹ (1.5 to 2.5 pints/acre) plus nonionic surfactant at 8 to 32 fl oz per 100 gal spray mix
Time:	Apply to young grain or weeds before potatoes emerge.
Remarks:	A nonselective, postemergence herbicide. Good spray coverage is essential for control. Paraquat has no soil residual activity and will not control weeds that emerge after application.
Caution:	A restricted-use herbicide. Follow all use restrictions and precautions given on the label. Paraquat requires special safety equipment when handling, mixing and spraying. Do not apply to emerged potatoes or injury will occur.
glyphosate (Roundup)	
Rate:	0.3 lb ae/acre ² (12 fl oz/acre) for volunteer grains
Time:	Apply when annual grain is less than 6 inches tall and before potatoes emerge.
Remarks:	Use a nonionic surfactant at a concentration indicated on the label and 3 to 10 gal of water per acre. Good growing conditions will enhance control of the cover crop.
Caution:	Apply before the potatoes have emerged or the crop will be injured. Glyphosate has no soil residual activity and will not control weeds that emerge after application. Follow all use restrictions and precautions on the label.
Annual Grass and Certain Annual Broadleaf Weeds	
EPTC (Eptam or Genep)	
Rate:	3 lb ai/acre (3.5 pints/acre) for annual grass, nightshade, redroot pigweed and certain other broadleaf weeds
Time:	Preplant: Apply and incorporate just before planting. Drag-off: Harrow to kill emerged weeds. Lay-by: Apply and incorporate during or after hilling and before potatoes emerge. Clean cultivation is important. If potatoes have emerged, apply as a directed spray to the soil and incorporate. Irrigation: Meter into the irrigation water after clean cultivation.
Remarks:	EPTC must be thoroughly incorporated into the soil immediately after application. It is not effective on emerged weeds. Preplant treatments should be incorporated 2 to 3 inches deep by cross-disking 4 to 6 inches deep. Where potatoes are hilled after herbicide application, mix the herbicide 3 or more inches deep. Incorporate postplanting treatments 2 to 3 inches deep with a rolling cultivator. Take care that incorporation machinery does not damage potato seed pieces or elongating sprouts. This treatment will provide good control of weeds, including hairy nightshade, for about 5 to 6 weeks. EPTC can be applied by metering it into the irrigation water before the weeds emerge or after a clean cultivation. Use 1 inch of water on silt soils to incorporate the herbicide.

¹ai is active ingredient, which is the chemical in a herbicide formulation that is responsible for herbicidal effects. The active ingredient is identified on the product label.

²ae is acid equivalent, which is the herbicidally-active parent acid of the active ingredient. Rates of acid-based herbicides, such as glyphosate, should be expressed as acid equivalents per unit area. Glyphosate, sold as Roundup, contains 3 pounds ae/gallon.

The Authors

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Table 1 (cont'd).

Herbicide	Application and remarks
EPTC (cont'd)	
Caution:	Do not exceed 12.25 lb ai/acre (14 pt) of EPTC per cropping year. Do not apply within 45 days of harvest. Severe crop injury may occur when EPTC is applied after potatoes emerge if the potatoes are covered with treated soil by subsequent mechanical incorporation. EPTC is not effective on muck soils.
metolachlor (Dual)	
Rate:	1.5 to 3 lb ai/acre (1.5 to 3 pints/acre)
Time:	Apply before or after planting (but before potatoes and weeds emerge) or after final hilling (if potatoes and weeds have not yet emerged). Metolachlor may also be applied at lay-by at 2.5 lb ai/acre (2.5 pints/acre).
Remarks:	Use the lower rates on coarse-textured soils or soils low in organic matter. The herbicide may be applied by aircraft, by ground equipment or through center-pivot irrigation systems. Incorporation into the top 3 inches of soil is required for preplant applications. Preemergence applications may be incorporated into the top 2 inches of soil with equipment that will not damage potato seed pieces or elongating sprouts. When applying through center pivot irrigation systems, apply the proper rate, depending on soil type, in 0.5 to 1.0 inch of water. Uniform water incorporation (first water after application) is important. The lay-by treatment may be applied over a previous metolachlor application, but do not apply more than 5.5 lb ai/acre in a single crop season. This treatment will not control emerged weeds.
Caution:	If soils are cool and wet after application, metolachlor may delay maturity and/or reduce yield of Superior and other early-maturing potato varieties. Do not harvest potatoes within 60 days after a planting-to-final-hilling application or within 40 days after a lay-by application. In event of crop failure, corn, potatoes, safflowers or metolachlor-registered pod crops may be replanted immediately. Barley, oats, rye or wheat may not be planted until 4½ months after application. Pod crops, root crops or buckwheat may be planted the spring after treatment.
trifluralin (Treflan)	
Rate:	(1) 0.375 lb ai/acre applied before planting and 0.375 lb ai/acre applied after potatoes are fully emerged; or (2) 0.5 lb ai/acre applied after planting on light soils, 0.625 to 0.75 lb ai/acre on medium soils and 0.75 lb ai/acre on heavy soils. On soils having 2 to 5 percent organic matter, use 0.75 to 1 lb ai/acre.
Time:	(1) Apply and incorporate 0.375 lb ai/acre preplant and 0.375 lb ai/acre after potatoes are fully emerged; or (2) apply treatments of 0.5 lb ai/acre to 1.0 lb ai/acre (depending on soil type) as a postplant incorporated spray immediately after planting or up to a time that the incorporation procedure will not damage the sprout; or apply after potato plants have fully emerged and incorporate.
Remarks:	Mechanically incorporate trifluralin thoroughly into 2 to 3 inches of soil as soon as possible, but no later than 24 hours after application. The preplant treatment may be incorporated conventionally by cross-disking. A ground-driven rolling cultivator is a suggested implement for incorporating the postplant treatments. Operate it twice over treated areas at 4 to 6 mph, set it to throw treated soil toward center of row and set it to maintain the hill and furrow. Do not cover the foliage completely with treated soil when incorporating the postemergence treatment or with subsequent cultivations. Take care that incorporation machinery does not damage potato seed pieces or elongating sprouts.
Caution:	Strict adherence to label rates and precautions is necessary to prevent crop injury. Do not plant sugarbeets, red beets or spinach for 12 months, nor corn for 14 months after application. Do not plant any of these crops for 18 months after application to land that has been fallowed without irrigation or cultivation.
pendimethalin (Prowl)	
Rate:	0.75 to 1.5 lb ai/acre (1.5 to 3.0 pints/acre)
Time:	Apply after planting up to the 6-inch stage of potato growth.
Remarks:	The seedbed should be firm and free of clods and trash before planting potatoes. Pendimethalin will not control established weeds. Use the lower rates on coarse-textured soils. The herbicide may be applied by aircraft, by ground equipment or through sprinkler systems. Pendimethalin may be incorporated mechanically or by rainfall or irrigation. Under furrow irrigation, apply after final hilling and thoroughly incorporate 1 to 2 inches deep with equipment that will not damage potato seed pieces or elongating sprouts. Under sprinkler irrigation, apply and irrigate with about 0.5 to 0.75 inch of moisture, depending on soil type, to move

Table 1 (cont'd).

Herbicide	Application and remarks
pendimethalin (cont'd)	<p>the pendimethalin into the zone of seed germination. On sands use the lower amount and on silt loams use the higher amount. The herbicide will be applied only as evenly as the irrigation water.</p> <p>Caution: Do not apply postemergence if potatoes are under stress or crop injury may occur. Do not plant sugarbeets, red beets or spinach for 12 months after pendimethalin application. Plow soil to a depth of 12 inches before planting these crops. Wheat and barley may be planted 4 months after application. All other crops can be planted the next year.</p>
Annual Grass and Broadleaf Weeds	
paraquat (Gramoxone Super)	<p>Rate: 0.28 to 0.47 lb ai/acre (1.5 to 2.5 pints/acre) plus nonionic surfactant at 8 to 32 fl oz per 100 gal spray mix</p> <p>Time: Apply after weed emergence but before potato emergence.</p> <p>Remarks: Delay application to provide maximum weed emergence, but apply no later than ground cracking, before potatoes have emerged. Paraquat has no soil residual effect and will not control weeds that emerge after application. The herbicide will kill most green plant growth on contact. Thus, good spray coverage is essential.</p> <p>Caution: A restricted use herbicide. Application made after crop emergence has reduced yields because of injury. Follow all use restrictions and precautions given on the label. Paraquat requires special safety equipment when handling, mixing and spraying.</p>
glyphosate (Roundup)	<p>Rate: 0.19 to 1.125 lb ae/acre (8 to 48 fl oz/acre)</p> <p>Time: Apply after weed emergence but before potato emergence.</p> <p>Remarks: See the label for rates recommended for specific species. At low rates, use a nonionic surfactant at a concentration indicated on the label and 3 to 10 gal of water per acre. Delay application to provide maximum weed emergence, but apply before potatoes emerge. The herbicide has no soil residual activity and will not control weeds that emerge after application.</p> <p>Caution: Glyphosate applied after crop emergence will injure or kill potatoes. Follow all use restrictions and precautions given on the label.</p>
metribuzin (Lexone or Sencor)	<p>Rate: 0.38 to 0.75 lb ai/acre (0.5 to 1.0 lb 75% dry flowable/acre) preemergence, or 0.25 to 0.5 lb ai/acre (0.33 to 0.67 lb 75% dry flowable/acre) postemergence</p> <p>Time: Metribuzin may be applied preplant incorporated (PPI). Metribuzin may also be applied after planting but before weeds and potatoes emerge, or postemergence before weeds are 1 inch tall, or preemergence and postemergence, or twice postemergence 14 days apart if not used preemergence.</p> <p>Remarks: When applied preplant, metribuzin should be incorporated evenly and not deeper than 4 to 6 inches. Use the lower rate on coarse or sandy soils. Lambsquarters and pigweed can be controlled with 0.25 lb ai/acre. To control barnyardgrass and Russian thistle, 0.33 to 0.5 lb ai/acre is required. For most weeds, 0.5 lb ai/acre is sufficient. Crop injury may occur at higher rates. With the postemergence treatment, overhead moisture from rain or sprinkler irrigation within 24 hours after application may decrease control. Metribuzin may be applied through sprinklers. Apply the proper rate in 0.25 to 0.75 inch of water (depending on soil type) as continuous injection in center-pivot and self-propelled, wheel-move systems or in the last 15 to 30 minutes of set in solid-set sprinkler irrigation systems.</p> <p>Caution: Do not mechanically incorporate metribuzin applied pre- or postemergence into the soil. Mechanical cultivation after treatment will decrease weed control and may cause potato injury. Do not apply more than 1 lb ai/acre per crop season regardless of method of application. Do not apply within 60 days of harvest. Do not apply after June 30 if treated land is to be planted to crops other than potatoes. Do not make postemergence application on early-maturing, smooth-skinned white or red-skinned varieties of potatoes. Tests indicate that Shepody, White Rose, Norchip, Hi Plains, Centennial Russet and Cascade varieties are sensitive to metribuzin and may be severely injured. Other newly released varieties may be sensitive to metribuzin applied postemergence. When growing new varieties for the first time, do not treat entire acreage until potato sensitivity is determined. Do not apply metribuzin postemergence within 3 days after periods of cloudy, cool or wet weather. Do not apply to potatoes growing under</p>

Table 1 (cont'd).

Herbicide	Application and remarks
metribuzin (cont'd)	
	stress (moisture, disease, mechanical injury, nutrient deficiency, frost damage or excessive heat) as injury may occur. Do not apply within 24 hours of application of other pesticides. Consult the respective product labels for crop rotation restrictions.
trifluralin (Treflan) + EPTC (Eptam or Genep)	
Rate:	(1) Preplant 0.375 lb ai/acre trifluralin plus 3 lb ai/acre EPTC, or (2) postplant-preemergence 0.5 lb ai/acre trifluralin plus 3 lb ai/acre EPTC
Time:	This combination may be used in one of three ways: (1) Apply and immediately incorporate trifluralin plus EPTC as a tank-mix before planting, or (2) apply and immediately incorporate trifluralin plus EPTC as a tank-mix after planting but before potato emergence or (3) apply and incorporate trifluralin after planting but before potato emergence and then apply and incorporate EPTC as a directed spray at lay-by.
Remarks:	Incorporate trifluralin or trifluralin plus EPTC postplant treatments, applied up to or immediately after final hilling, with equipment that will not damage potato seed pieces or elongating sprouts. A ground-driven rotary cultivator is suggested for incorporation. Operate a cultivator twice over the treated area at 4 to 6 mph. Set the machine to throw treated soil toward the center of the row, yet maintain the hill and furrow. In areas where potatoes are commonly dragged-off, apply the treatment and incorporate before the drag-off operation. Incorporate the preplant mixture of trifluralin plus EPTC 2 to 3 inches deep by cross-disking 4 to 6 inches deep or with a power-driven rotary tiller set to cut 2 to 3 inches deep.
Caution:	To help prevent crop injury, carefully read and follow both the trifluralin and EPTC labels before applying. Potatoes may be injured severely if these herbicides are applied after potato emergence if the potatoes are covered with treated soil by subsequent mechanical incorporation. Do not use a trifluralin-EPTC tank mix both before and after planting in the same season. Do not plant sugarbeets, red beets or spinach for 12 months, nor corn or oats for 14 months after application. Do not use foliage from treated crops for feed or forage.
pendimethalin (Prowl) + EPTC (Eptam)	
Rate:	0.5 to 1.5 lb ai/acre (1 to 3 pints/acre) pendimethalin + 2.6 to 3 lb/acre EPTC (3 to 3.5 pints/acre)
Time:	Apply and incorporate after planting but before potatoes and weeds emerge. In areas where potatoes are dragged-off, apply and incorporate after drag-off but before potatoes and weeds emerge. Pendimethalin + EPTC may also be applied postemergence up to the 6-inch stage of potato growth through sprinkler systems.
Remarks:	Incorporate immediately after application into the top 1 to 2 inches of soil. This mixture will not control established weeds.
Caution:	Do not make more than one application per season of this tank mixture. Do not apply if potatoes are under stress from cold/wet or hot/dry conditions or crop injury may occur.
EPTC (Eptam) + metribuzin (Lexone or Sencor)	
Rate:	3.0 to 4.0 lb ai/acre EPTC (3.5 to 4.5 pints/acre) plus 0.25 to 0.5 lb ai/acre metribuzin (0.33 to 0.67 lb 75% dry flowable/acre)
Time:	May be applied before planting, during or after hilling or postemergence until potatoes are 4 to 6 inches tall. Must be thoroughly incorporated into the top 2 to 3 inches of soil mechanically or by sprinkler after application.
Remarks:	Use the lower rates on coarse-textured soils. When metered into irrigation systems use 0.5 to 0.75 inch of water/acre with a center-pivot system. For solid-set wheel lines or hand lines, moisten the soil surface lightly, then apply the herbicide mixture in 0.5 to 1.0 inch water. For best results, the soil should be wetted to a depth of 5 to 7 inches.
Caution:	Use EPTC + metribuzin postemergence only on white-skinned potato varieties that are not early maturing. Tests indicate Shepody, White Rose, Norchip, Hi Plains, Centennial Russet and Cascade varieties are sensitive to metribuzin and may be severely injured.
metolachlor (Dual) + metribuzin (Lexone or Sencor)	
Rate:	1.5 to 3 lb ai/acre (1.5 to 3.0 pints/acre) metolachlor plus 0.375 to 0.5 lb ai/acre metribuzin (0.5 to 0.67 lb 75% dry flowable/acre)
Time:	Apply as a tank-mix anytime after planting until immediately after last hilling, but before potatoes emerge.

Table 1 (cont'd).

Herbicide	Application and remarks
metolachlor (cont'd)	
Remarks:	This combination may be applied as a tank-mix or sequentially. Use the lower rates on coarse-textured soils or soils low in organic matter; use the higher rate on fine-textured or high organic matter soils. About 0.5 inch of overhead moisture is needed to move the herbicides into the soil. When applied through the center-pivot system, apply the proper rates in 0.5 to 0.75 inch of water (depending on soil type). A prepackaged mix of metolachlor + metribuzin (Turbo) is available.
Caution:	Do not mechanically incorporate this combination into the soil when tank mixed. Mechanical cultivation of metribuzin after treatment will decrease weed control and may cause potato injury. Tests indicate Shepody, White Rose, Norchip, Hi Plains, Centennial Russet and Cascade varieties are sensitive to metribuzin and may be severely injured. If soils are cool and wet after application, metolachlor may delay maturity and/or reduce yield of Superior and other early-maturing potato varieties. Do not harvest less than 60 days after application. In event of crop failure, potatoes may be immediately replanted. Corn, wheat and barley may be planted 4½ months after application.
pendimethalin (Prowl) + metribuzin (Lexone or Sencor)	
Rate:	0.5 to 1.5 lb ai/acre (1 to 3 pints/acre) pendimethalin plus 0.25 to 0.5 lb ai/acre (0.33 to 0.67 lb 75% dry flowable/acre) metribuzin
Time:	Apply as a tank-mix after planting up to the 6-inch stage of potato growth.
Remarks:	Use the lower rates on coarse-textured soils. About 0.5 inch of overhead moisture is required to move the herbicides into sandy soil and up to 0.9 inch is needed for silt loam soils. For optimum control of weeds, apply before the weeds are 1 inch tall. The tank-mix of pendimethalin plus metribuzin may be applied through sprinklers. Apply the proper rates in 0.5 to 0.75 inch of water (depending on soil type) as a continuous injection in center-pivot and self-propelled wheelmove systems or in the last 15 to 30 minutes of set with wheel-line or solid-set sprinkler irrigation systems.
Caution:	Do not mechanically incorporate this combination into the soil. Mechanical cultivation after treatment will decrease weed control and may cause potato injury. Tests indicate Shepody, White Rose, Norchip, Hi Plains, Centennial Russet and Cascade varieties are sensitive to metribuzin and may be severely injured. Do not plant sugarbeets, red beets or spinach for 12 months after application. Plow land to a depth of 12 inches before planting these crops. Wheat and barley may be planted 4 months after application.

Grass Control

sethoxydim (Poast)	
Rate:	0.28 to 0.47 lb ai/acre (1.5 to 2.5 pints/acre)
Time:	Apply to actively growing annual or perennial grasses at the appropriate stage of grass growth as indicated on the label.
Remarks:	Refer to the label for specific rates for weed species and weed size. Always add a nonphytoxic oil concentrate to the spray tank at 2 pints for each acre of potatoes treated. Sethoxydim is most effective on actively growing grasses before they reach the maximum size indicated on the label. Larger, more mature grasses can often be controlled, but two applications may be required. Sethoxydim will not control annual bluegrass or any of the fine fescues and is relatively weak on downy brome and quackgrass.
Caution:	Control often is erratic if grasses are stressed by drought, temperature extremes, insect damage, herbicide injury, etc. Do not apply if rainfall is expected within 1 hour after application. Do not cultivate within 5 days before application or within 7 days after application. Do not apply within 30 days of harvest. Do not mix with other pesticides. Do not apply more than 0.94 lb ai/acre in one season.

Perennial Weeds — Canada Thistle

metribuzin (Lexone or Sencor)	
Rate:	0.5 lb ai/acre (0.67 lb 75% dry flowable/acre) postemergence
Time:	Apply twice postemergence 1 to 2 weeks apart when thistles are 2 to 8 inches tall but before rows begin closing.
Remarks:	This treatment will only suppress Canada thistle. Overhead moisture from rain or sprinkler irrigation within 24 hours after application may decrease control.

Table 1 (cont'd).

Herbicide	Application and remarks
metribuzin (cont'd)	
Caution:	Refer to previous references to metribuzin in this bulletin.
Perennial Weeds — Quackgrass	
EPTC (Eptam or Genep)	
Rate:	4 lb ai/acre (4.5 pints/acre)
Time:	Apply in the fall (September to October) or in spring just before planting potatoes.
Remarks:	Thoroughly till quackgrass infestations before application so that rhizomes are chopped into 2- to 3-inch or smaller pieces. EPTC must be incorporated immediately and thoroughly after application, either with a rotovator or by cross-disking. Use on mineral soils containing less than 10 percent organic matter.
sethoxydim (Poast)	
Rate:	0.47 lb ai/acre (2.5 pints/acre)
Time:	Apply when quackgrass shoots are 6 to 8 inches tall. A second application at 0.28 lb ai/acre (1.5 pints/acre) may be needed if regrowth occurs.
Remarks:	Always add a nonphytotoxic oil concentrate to the spray tank at 2 pints/acre. Sethoxydim provides suppression, not eradication, of quackgrass.

Table 2. Herbicide effectiveness on weeds in potatoes.

Weeds	EPTC (Eptam, Genep)	Metolachlor (Dual)	Trifluralin (Treflan)	Pendimethalin (Prowl)	Metribuzin (Sencor, Lexone)	Sethoxydim (Poast)
Barnyardgrass	G	G	G	G	F	G
Black nightshade	F-P	G	P	F-P	P	N
Buckwheat	F	-	F	-	F	N
Cocklebur	P	-	P	-	F	N
Crabgrass	G	G	G	G	F	-
Dodder	P	P	P	P	P	N
Foxtail	G	G	G	G	F	G
Hairy nightshade	G	F	P	F-P	F	N
Knotweed	G	-	G	G	G	N
Kochia	F	F	G-F	G-F	G	N
Lambsquarters	G	F	G-F	G-F	G	N
Mallow	P	F	P	F	G	N
Mustard	P	-	P	-	G	N
Pigweed	G-F	G	G	G	G	N
Purslane	G	G	G	G	G	N
Russian thistle	P	P	G-F	G	G	N
Sandbur	G	G	G	-	P	G
Smartweed	P	P	F-P	F	F	N
Sowthistle	F	-	P	P	G	N
Sunflower	P	P	P	P	F	N
Sweet clover	P	-	P	-	G	N
Volunteer barley	G-F	-	P	-	P	G
Volunteer oat	G-F	-	G	-	G-F	G
Volunteer wheat	G-F	-	F	-	P	G
Wild oat	G-F	F-P	F	F	F-G	G
Canada thistle	P	-	P	-	F	N
Field bindweed	P	-	P	P	P	N
Yellow nutsedge	F	G-F	P	P	P	N
Quackgrass	G-F	-	P	-	F-P	F
Russian knapweed	P	-	P	-	P	N

G = good, F = fair, P = poor, N = none, - = no information available

Response of weeds to any of the listed herbicides may be altered by growing conditions, weed populations, type of irrigation, genetic variations, soil type, pH, organic matter, time of application and application rate. Ratings may vary from season to season and from site to site. Weed control generally decreases as the season progresses.

Table 3. Herbicide names and formulations used in potatoes.

Trade name ¹	Common name	Formulation concentration ²
Dual	Metolachlor	8 lb/gal EC
Eptam	EPTC	7 lb/gal EC
Genep	EPTC	7 lb/gal EC
Gramoxone Super	Paraquat	1.5 lb/gal S
Lexone DF	Metribuzin	75% DF
Lexone 4L	Metribuzin	4 lb/gal F
Poast	Sethoxydim	1.5 lb/gal EC
Prowl	Pendimethalin	4 lb/gal EC
Roundup	Glyphosate	3 lb/gal (ae) S
Sencor DF	Metribuzin	75% DF
Sencor 4	Metribuzin	4 lb/gal F
Treflan MTF	Trifluralin	4 lb/gal EC
Turbo	Metolachlor + Metribuzin	8 lb/gal EC (6.55 Metolachlor + 1.45 metribuzin)

¹Reference to commercial product or trade names is made with the understanding that no discrimination is intended and no endorsement by the University of Idaho Cooperative Extension System is implied.

²DF = dry flowable, EC = emulsifiable concentrate, F = flowable, S = soluble. All liquid formulations listed are lb ai, except for acid-equivalent formulations designated by ae. Dry formulations are listed as percent ai by weight.