



Weed Control in Potato

There are a number of reasons why potato growers should try to manage weeds within their fields. Weeds can compete with potato plants for light, water and nutrients. Weeds may act as hosts for other pests, such as diseases, insects or nematodes and could serve as a reservoir for pests within a field. Weeds can also interfere with potato harvest. Ultimately, weeds can decrease tuber yield and quality. A potato weed management program should follow the principles of Integrated Pest Management (IPM). IPM is a pest management strategy that integrates preventative, cultural, mechanical, biological and chemical control methods to achieve a sustainable production system that balances economic, health and environmental concerns. IPM is based on dynamic principles rather than on a definitive set of rules and can vary from farm-to-farm or even from field-to-field.

When planning a weed management program, producers must first be able to identify the weed issues present within a field before deciding on the best control method. By knowing the weeds present in your fields, you can gather information on their life cycle and biology, and have a better understanding of how certain weeds reproduce and survive and what is required to control them. The New Brunswick Department of Agriculture, Aquaculture and Fisheries maintains an integrated pest management image bank on the www.gnb.ca/agriculture website, available by clicking [here](#). This bilingual site contains images of diseases, insects, weeds and other disorders affecting New Brunswick's potato crop.

Once you have gathered the information through proper identification and scouting, you can make the decision as to whether or not a weed should be targeted for control. Knowledge of the specific weeds present in each potato field allows the selection of the best treatment for each field. Keep a record of the weeds and treatments you have used, and be prepared to change treatments if one or more weed species start to build up. If action is required, it is important to choose methods that optimize costs and effectiveness of control while minimizing any adverse effects. The most economical and effective potato weed management program combines cultural, mechanical and herbicide weed control practices.

Cultural Weed Control

Cultural weed control methods focus on management of the weeds within the crop rotation, preventing the entry of new weeds into a field and employing crop management decisions which may increase the competitive ability of the crop with weeds.

Weed control within the potato crop year begins with proper weed control in prior years. Potato growers should attempt to control weeds such as sow thistle and nightshades in other crops in the rotation because there are few control options for use on potatoes that are effective against these weeds. Growers should also consider herbicide choices within other crops, as residual herbicides can limit cropping choices in future years. Use of some potato herbicides in the current year, like metribuzin, can restrict planting choices in the future.

New weeds can be introduced to the field by equipment or crop choices. Quackgrass, marsh hedge-nettle or nutsedge can be spread from field to field on cultivation equipment. Machinery sanitation is important when moving from one field to another. Proper scouting and identification

can help determine if new weed species are present. Ideally, escaped weeds should not be allowed to set seed.

Potato cultivars that develop and maintain a dense canopy can be competitive with weeds. Crop uniformity and density is determined by the variety and seed spacing. Plant misses as a result of poor quality seed, poor seed cutting, planting conditions or a malfunctioning planter will reduce crop density and competitiveness with weeds. It is important that the planter be operating efficiently to produce a uniform competitive plant stand. Early closure of the rows will shade out potential weed issues, although other disease and insect management strategies should also be considered.

Mechanical Weed Control

Mechanical weed control is an effective tool for controlling annual weeds. If performed under the wrong conditions, tillage can have a negative effect on the efficiency of harvesting operations, yield and quality. Hilling is the only post planting tillage operation necessary in the production of potatoes. The main objective of hilling is to provide sufficient soil for tuber set and development. A proper hill will also prevent greening, minimize infection with late blight, minimize frost damage and facilitate harvest.

Pre-plant tillage can be used to control early season weeds. A shallow cultivation of the field 2-3 days before potatoes emerge with a finger weeder, cultivators set to work shallow, or drag chains can provide control of small emerged annual broadleaf weeds and grasses. Some control of perennial weeds will be provided but these are more difficult to control. Addition of a between-the-row cultivation, after crop emergence, will give control of weeds present. Subsequent hilling operations will give further control of weeds. Set equipment properly to control weeds between the row and to bury weeds in the row with soil. Some control of established perennial weeds will be obtained but the equipment, if not properly cleaned, may also spread weeds to clean fields.

Herbicide Weed Control

A number of herbicides are recommended for use in potatoes. Excellent weed control can be achieved if the spray program is planned in advance and is based on knowledge of each production field. Herbicides must be used responsibly and judiciously. They are just one component of an integrated weed management plan. Potatoes emerge approximately 15 to 30 days after planting. A significant number of weeds can germinate in this time period. Cultivation and hilling will disturb the herbicide treated soil allowing weeds to germinate. If hilling is performed just prior to emergence of potatoes, then a pre-emergent herbicide may not be required. An application of a non-selective herbicide just prior to emergence of potatoes will control annual weeds and set back perennial weeds. Burn-off herbicides are not affected by tillage operations.

If you start with a pre-emergence (PRE) herbicide treatment, you can apply post-emergence (POST) herbicide treatments later if necessary. If you ignore the possibility of PRE treatments and rely only on a POST treatment you have no other options if that treatment fails to give satisfactory weed control. An integrated option for weed control is the use of herbicide bands over the potato rows with mechanical weed control between the hills. A fact sheet outlining this method of weed control is available at this location:

www.agrireseau.qc.ca/phytoprotection/documents/BandedPesticidePotatoes.pdf

Herbicide Notes

Do not use a herbicide more than once or apply an additional herbicide during the growing season unless split or combination treatments are registered. Supply companies sell products with different concentrations of the same herbicide. Over the years, some companies have changed the concentration of active ingredient in a product. Various concentrations of glyphosate, linuron, metribuzin, EPTC and other herbicides are available, so refer to the specific product label for each herbicide to verify correct application rates are used for these products. Always read and follow label directions for every pesticide application.

CLETHODIM (Select, Centurion, Arrow) is a systemic post-emergence herbicide with uptake primarily through the leaves. Clethodim should be used at all times in a tank-mix with the adjuvant Amigo or X-Act. Apply clethodim when the annual grasses are in the 2 to 6 leaf stage. Most effective control is achieved if the application is made prior to tillering when annual grasses are small and actively growing. Most effective quackgrass control results are achieved when application is made at the 3 to 5 leaf stage, when the canopy is uniform and actively growing. Clethodim will be less effective when plants are stressed by lack of moisture, excessive moisture, low temperature and/or very low relative humidity. Potatoes are tolerant to clethodim at all growth stages. Do not apply if rainfall is expected within 1 hour of application. Thorough coverage of the leaf foliage is necessary for consistent grass control. The time for complete control is normally 7 to 21 days after application depending on growing conditions and crop competition.

DIMETHENAMID-P (Outlook) will control annual grasses, red root pigweed and Eastern black nightshade, including Group 2 and triazine resistant biotypes. Dimethenamid-p should be applied as a pre-emergent application before weeds emerge and after potatoes have been planted. Do not apply before planting or onto emerged potatoes. The best time to apply is shortly after a hilling operation that was made just before potatoes emerge. In cold and wet growing conditions, dimethenamid-p application may result in delayed emergence or early season stunting of potatoes. The application rate will depend on soil type and organic matter levels. Apply higher rates on fine textured or high organic matter soils and for heavier weed problems. Apply in a minimum of 100 litres of water per hectare, to ensure good coverage. Select proper nozzle and pressure to avoid spraying fine mist. For best results, use flat fan or flood jet nozzle. Rainfall is required to activate and move the herbicide into the soil zone. If dry conditions persist, a shallow cultivation or the use of a rotary hoe will move the chemical into moist soil and control weed escapes. If cultivation is necessary because of soil crusting or compaction, tillage should be shallow to minimize dilution of the herbicide. An eleven month interval is required before planting rotational crops that are not registered for use with dimethenamid-p.

EPTC (Eptam) is applied under low pressure (200 kPa) in 110-340 litres of water per hectare. EPTC can be used at the following times: 1) before planting, 2) at drag-off (a light cultivation before potatoes emerge) or 3) post emergence. Regardless of the timing of application, incorporation of the chemical is essential. Once trapped in the soil, a vapour forms when EPTC comes into contact with moisture. This vapour acts to destroy germinating weed seeds and quackgrass rhizomes (if rhizomes are 7.5 cm or less). A few broadleaf weeds, such as wild radish and wild mustard, are not controlled. Another herbicide application is usually required to control some weeds tolerant to EPTC. EPTC can also be tank mixed with metribuzin and applied before planting. Refer to the label for best application, tillage and weed control conditions for this herbicide.

FLUAZIFOP-P-BUTYL (Venture L) is applied post emergence to potatoes and weeds and will provide control of many annual grasses and quackgrass. It does not control broadleaf weeds or sedges. Growth of grasses stops soon after application but destruction of the whole plant may take

several weeks. Fluazifop will be less effective when weeds are not growing rapidly due to stress from lack of moisture, excessive moisture, flooding, low-temperature and/or very low relative humidity. For annual grass control, apply when the annual grasses have 2-5 leaves. For quackgrass control, apply when the quackgrass has 3-5 leaves. Pre-plant tillage to fragment quackgrass rhizomes improves control. Do not cultivate until 5 days after application. Do not apply if rainfall is expected within 2 hours of application. Fluazifop may also be tank mixed with metribuzin formulations for early post emergent applications. Use a maximum volume of 300 L/ha.

FOMESAFEN (Reflex) is applied pre-emergence to potatoes for the control of red-root pigweed and ragweed, plus suppression of lambs quarters. Fomesafen should be used to compliment other herbicide applications and may help with weed resistance management. Apply at a rate of 1 L/ha after planting but before potato emergence. If weeds are emerged, include a recommended non-ionic surfactant at 0.1% v/v. Apply in a minimum of 200 L water per hectare. Do not cultivate the soil for 7 days following application. Do not apply to soils with more than 5% organic matter or to fine textured soils. Fomesafen may remain active in the soil for several months and residues present a potential for carry-over damage for certain crops. Do not apply fomesafen to any field more than once every two years. The pre-harvest interval is 70 days.

GLUFOSINATE AMMONIUM (Ignite): Apply glufosinate prior to ground crack (potato emergence). For best results, apply to emerged, actively growing weeds. Weeds emerging after application will not be controlled. Apply in 110-330 litres of water per hectare. Glufosinate works as a contact herbicide, so uniform, thorough coverage improves control. In addition, application of the spray at a 45° angle forward will result in better coverage. At cool temperatures (below 10°C), poor moisture and low humidity, speed of action may be reduced. Leave a 1 m buffer between edge of field and environmentally sensitive areas. Do not spray when winds exceed 16 km/hr if using open boom sprayers. For residual control of annual weeds, glufosinate may be tank mixed with Sencor 500 F. Do not apply if rainfall is expected within 4 hours of application. ***Do not use this product as a vine desiccant before harvest.***

GLYPHOSATE (Roundup and others) is sold under many trade names and formulations, verify the correct application rates with specific product labels. Glyphosate is used for perennial weed control prior to planting potatoes. Glyphosate has no soil activity and therefore will not injure crops planted in the treated area. Glyphosate, when used after weed emergence but before ground crack will control emerged weeds. Emerged potato plants will be injured and reduced yield may result. Apply in the spring or fall for quackgrass control. Quackgrass must be at least 20 cm in height (3 to 4 leaf stage). Tillage prior to application will reduce control of quackgrass. Where tillage is desired, delay for 5 to 7 days after glyphosate application. Weed control with glyphosate is reduced if dirty or hard water is used for application. The addition of ammonium sulfate to the spray mix is recommended if glyphosate must be applied in hard water.

LINURON (Lorox L, Linuron) is applied pre-emergence as potato plants must be covered to avoid injury. Potato seed should be 5 cm below the treated soil. Use sufficient water (300 L per ha) to cover the ground evenly. Abnormally heavy rainfall following application may cause crop injury. Sufficient moisture (usually 3-5 cm) is necessary after treatment to carry the chemical into the root zone of germinating weeds; best results are obtained when this occurs within 7 to 10 days after application. Avoid cultivation after application if possible. The high rate usually controls annual grasses such as barnyard grass. Do not use on sand or coarse textured soils low in organic matter. Use the higher rate on clay soils and the lower rate on sandy soils.

METRIBUZIN (Sencor, Tricor, Squadron, Metrix) application pre-emergence to potatoes is preferred. The higher rate is usually required to control annual grasses, to slow the growth of quackgrass and for dense weed infestations. Use the low rate for broadleaf weed control only.

Moisture is needed shortly after a pre-emergence application for improved weed control. Apply in 100-300 L water/ha. Avoid overlapped applications that will increase dosages above those recommended.

Pre-emergence application (planting to ground crack) of metribuzin is preferred. However, where it is not possible to spray before crop emergence, metribuzin can be applied early post-emergence before weeds are 4 cm high and before first emerged potato tops are 10 cm high. This treatment may cause temporary yellowing and/or leaf burn, especially when the crop is under the stress of poor growing conditions. Do not use when plants are under stress, such as cool, wet, cloudy weather conditions or very dry soil conditions. Do not use on muck soil. Not all potato varieties have been tested for tolerance to metribuzin. Some potato varieties (such as early maturing, red-skinned, Atlantic, Eramosa, Shepody) can be sensitive to and injured by an application of metribuzin (such as yellowing/necrosis of leaf veins or leaf margins, stunting, and possible delay in harvest). First use of metribuzin on a potato variety must be limited to a small test area to ensure risk or level of potential injury is acceptable to the grower prior to adoption as a general field practice. Sensitivity to or injury after a postemergent application of metribuzin is typically visible in the test area within 5 days after application. Do not apply metribuzin early post-emergence on Shepody, Tobique, Belleisle, Sante, Tolaas, Atlantic, Eramosa, red-skinned varieties and potatoes grown for early market. Superior and Norchip appear to be sensitive to metribuzin applied post-emergence. Use only pre-emergence on Shepody cultivars. Consult your chemical dealer or seed supplier for information on the tolerance of newly released varieties. Under New Brunswick conditions, a few early post-emergence applications have occasionally reduced vine growth sufficiently to retard bulking and possibly to reduce yield. However, under these situations, the use of metribuzin applied early post-emergence to potatoes could be better than abandoning the crop to weeds, such as barnyard grass, weeds which are difficult to control by cultivation. If insufficient metribuzin was used pre-emergence, an additional early post-emergence treatment for annual grass may be applied. Do not apply more than a total of 1.1 kg active metribuzin per hectare in a growing season. Fall-seeded cover crops and certain vegetables such as cole crops, seeded the following spring, can be injured from metribuzin residue in the soil.

METRIBUZIN/RIMSULFURON (Titus Pro) is a commercial co-pack of rimsulfuron and metribuzin. The rate of metribuzin in Titus Pro is lower than the typical metribuzin rates used in potato production, so growers may need supplemental weed control when using this product. Apply as an early post-emergent herbicide. Spray before broadleaf weeds are 4 cm high and when annual grasses are 1 to 6 leaf stage (up to early tillering – two 2-leaf tillers). Do not use on Belleisle or Tobique varieties at any application timing. Do not use post-emergence on Atlantic, Eramosa, red-skinned or any early-maturing varieties. For additional information, follow the restrictions and recommendations from metribuzin and rimsulfuron sections of the guide.

METRIBUZIN/S-METOLACHLOR (Boundary LQD) is a commercial pre-mix of two active ingredients. The rate of metribuzin in Boundary LQD is lower than the typical metribuzin rates used in potato production, so growers may need supplemental weed control when using this product. Boundary LQD is applied before potato emergence. For additional information, follow the restrictions and recommendations from metribuzin and s-metolachlor sections of the guide. Do not apply at ground crack or if potatoes are emerged.

METRIBUZIN/S-METOLACHLOR (Tiedown) is a commercial pre-mix of two active ingredients. The recommended rate of metribuzin in Tiedown is similar to the typical metribuzin rates used in potato production. The concentration of s-metolachlor is different than other formulations of this product, so application rates are slightly lower than other formulations. Tiedown is applied before potato emergence. For additional information, follow the restrictions and recommendations from

metribuzin and s-metolachlor sections of the guide. Do not apply at ground crack or if potatoes are emerged.

METRIBUZIN/SULFENTRAZONE (Sencor STZ) is a mixture of two active ingredients, to help control triazine resistant weeds and other hard to control species. Follow all restrictions from the Sencor label. Applications must be made before potato emergence to avoid crop injury. A minimum of 2.5 cm (1 inch) of soil must cover emerging potato shoots at application. Injury may occur if potato seed pieces are germinating or if they are located near the soil surface. Avoid soil disturbance, including hilling, after application. Sencor STZ requires rainfall to activate, ideally within 10-14 days following application. A range of application rates are listed on the label. Use higher rates for longer season potatoes, heavy weed infestations or in soils with a pH less than 7.0 and organic matter greater than 3%. Only apply to soils between 1.5-6 % organic matter and with a pH of less than 7.8. Sulfentrazone should only be applied to any field once in a two year period. Authority products contain sulfentrazone as an active ingredient.

PARAQUAT (Gramoxone) kills weeds on contact with the foliage; rain falling shortly after application will normally not reduce the effectiveness of the treatment. Paraquat is inactivated on contact with the soil, allowing no residual action to occur in the soil. Applications made on cloudy days, during dull sunlight or just prior to or during periods of darkness, will generally increase weed control (and crop injury if potatoes are emerged). Apply in 300 to 550 L of water per hectare to thoroughly wet the foliage of emerged weeds. For dense weed growth, use the higher product rate and water volumes. For Russet Burbank and Cherokee, apply up to ground crack only (potato tops about to emerge). It can be used post-emergence on potatoes until 25-30% of the crop has emerged, but none of the tops exceed 5-8 cm in height (one week after ground crack), except on Russet Burbank. Temporary chlorosis (loss of leaf colour) of potato leaves will occur. Do not apply post-emergence to potatoes in the evening, or on cloudy days, or when the plants are under moisture stress. Application of paraquat for emergency control of quackgrass and emerged annual grass may be made when shoots are up to 10 cm high (not on Russet Burbank) but potato leaf chlorosis may be more severe and yield could be reduced. Late application should only be considered when quackgrass or annual grasses threaten the crop. If new weed growth appears, it will be necessary to cultivate or use a post-emergence herbicide. Hilling will usually be sufficient for control. For residual control of annual broadleaf weeds and annual grasses, follow tank mix recommendations on the label. Apply tank mix before the potatoes emerge. Use clear water for applying paraquat as it is deactivated by clay or organic particles. **Gramoxone Liquid Herbicide with Wetting Agent (Reg. No. 8661) is being phased out by the Pest Management Regulatory Agency. This formulation must be disposed of by December 31, 2018. It is not available for purchase at retail locations in 2018.**

RIMSULFURON (Prism, Rimsulfuron) is applied as a post-emergence treatment to control annual grasses in the 1 to 6 leaf stage and quackgrass in the 3 to 6 leaf stage, when potato plants are less than 10 cm tall. Control of some broadleaf weeds is also obtained. Apply before potatoes have initiated flowering. Do not apply within 30 days of harvest. Apply in a minimum of 100 L/ha of water and use within 24 hours of mixing as the herbicide will degrade in acidic or highly alkaline water. A non-ionic surfactant, either Citowett Plus, Agral 90 or Agsurf, is required within the spray mixture at 2 L surfactant per 1000L spray solution. Mix rimsulfuron with at least one quarter of the water first and add the surfactant after the herbicide is thoroughly mixed. Application of rimsulfuron may result in temporary foliar symptoms (discolouration of younger leaves and pinching of the terminal leaf). These symptoms may be confused with symptoms of a viral disease. Early application timing may reduce the likelihood of foliar symptoms. Under extreme weather conditions, such as hot, dry weather, excessive moisture, or frost, weed control may be reduced. Rainfall within 2-4 hours after application may reduce weed control. Crop injury may result if application is

made to potatoes that have been stressed by abnormally hot, humid or cold weather conditions, frost, low fertility, drought, water saturated soil, compacted soil, previous pesticide applications, disease or insect damage. If potatoes have been injured by frost, wait 48-72 hours before application.

SETHOXYDIM (Poast Ultra) is a post-emergence, contact and systemic herbicide for control of certain grasses; uptake is primarily through leaves. This herbicide does not control broadleaf weeds. Thorough coverage of the foliage is necessary for consistent grass control. Apply to actively growing grasses. Complete annual grass control takes 7 to 21 days depending on growing conditions and crop competition while quackgrass control may take 6 to 8 weeks. Application is made at the 1 to 6 leaf stage of annual grasses and at the 1 to 3 leaf stage of quackgrass. Cultivation no sooner than 7 days after application of sethoxydim will improve grass control. Best results are obtained in water volumes of 100 to 200 litres per hectare. Do not use flood jet or hollow cone nozzles with this herbicide as the level of grass control will be reduced. Surfactants are required to be used with sethoxydim. See product label for information on rate of application and mixes with surfactants Merge and Assist. Do not apply if rainfall is expected within one hour of application. Do not apply within 80 days of harvest.

S-METOLACHLOR (Dual II Magnum) controls most annual grasses, yellow nutsedge and Eastern black nightshade. For control of yellow nutsedge apply preplant incorporated (ppi) as recommended on the product label. For annual grass control, use either ppi or pre-emergence applications. Use the higher rate wherever annual grasses or yellow nutsedge predominates or densities of weeds are expected to be high. Do not apply to potatoes at ground crack or if potatoes have emerged. Rainfall within 10 hours is required for maximum activity of the pre-emergence application. Residual activity will normally be retained for 10-14 weeks. Winter cereals may be planted 4-5 months after s-metolachlor application. See the product label for registered tank mix combinations. Do not use s-metolachlor on muck soils or coarse textured soils low in organic matter. Do not use on the variety Superior.

HERBICIDE SELECTION TABLE																				
Weed Control Rating E - Excellent F - Fair G - Good P - Poor + Weed controlled if emerged - Lack of information	Potato Tolerance	Annual Broadleaves										Grasses			Perennials					
		chickweed	hempnettle	lamb's quarters	mustard family	nightshades	pigweeds	ragweeds	smartweed family	wild buckwheat	wild radish	barnyard grass	foxtail	smooth crabgrass	Canada thistle	field mint	goldenrod	marsh hedge-nettle	quackgrass	sow thistle
BEFORE PLANTING																				
EPTC – High rate	E	F	-	F	P	F	E	G	F	P	P	E	G	G	P	-	-	-	G	P
glyphosate – Low rate	P	+	+	+	+	+	+	+	+	+	+	+	+	+	P	+	+	+	G	E
glyphosate – High rate	P	+	+	+	+	+	+	+	+	+	+	+	+	E	+	+	+	E	E	
s-metolachlor	G	P	P	F	P	F	F	-	P	P	-	G	G	G	P	P	P	-	P	P
PRE EMERGENCE																				
dimethenamid-p	G	-	-	F	P	G	G	P	P	P	P	E	E	E	P	-	-	G	P	P
fomesafen	F	-	-	F	-	-	G	G	-	-	-	P	P	P	-	-	-	P	P	-
glufosinate ammonium	G	+	E	E	E	G	E	E	E	G	F	E	E	E	-	F	-	P	G	-
glyphosate	P	G	E	E	E	G	E	E	E	E	E	E	E	E	P	F	F	F	F	F
linuron	F	G	G	E	E	P	G	G	E	E	F	F	F	F	P	P	P	F	P	P
linuron + s-metolachlor	G	G	G	E	E	F	E	G	E	G	G	E	E	E	P	P	P	F	P	P
metribuzin	G	G	E	E	E	P	E	E	E	G	G	G	G	G	P	P	-	F	F	P
metribuzin + glufosinate	G	+	E	E	E	G	E	E	E	G	G	E	E	E	-	F	-	F	F	P
metribuzin + linuron	G	E	E	E	E	P	E	E	E	E	E	G	G	G	P	P	P	F	P	P
metribuzin + paraquat	G	G	E	E	E	F	E	E	E	E	G	G	G	G	-	F	-	F	G	F
metribuzin + s-metolachlor	G	G	E	E	E	F	E	E	E	G	G	E	G	G	P	P	P	F	P	P
metribuzin + sulfentrazone	G	G	E	E	E	P	E	E	E	G	G	G	G	G	P	P	-	F	F	P
paraquat	G	+	F	G	G	F	G	-	F	F	F	P	-	-	P	F	-	P	G	F
SOON AFTER EMERGENCE (REFER TO NOTES SECTION)																				
metribuzin	F	G	E	E	E	P	E	E	E	G	E	G	G	F	-	-	-	F	F	P
metribuzin + rimsulfuron	F	G	G	G	G	F	G	G	G	F	E	E	E	E	-	-	E	G	G	P
paraquat	F	+	F	G	G	F	G	-	F	F	F	F	-	-	-	F	-	P	G	F
POST EMERGENCE																				
clethodim – Low rate	E	P	P	P	P	P	P	P	P	P	P	E	E	E	P	P	P	P	F	P
clethodim – High rate	E	P	P	P	P	P	P	P	P	P	P	E	E	E	P	P	P	P	E	P
fluzifop-p-butyl – Low rate	E	P	P	P	P	P	P	P	P	P	P	E	E	G	P	P	P	P	F	P
fluzifop-p-butyl – High rate	E	P	P	P	P	P	P	P	P	P	P	E	E	G	P	P	P	P	E	P
rimsulfuron	G	G	-	F	G	F	G	P	F	-	E	E	E	E	-	-	E	G	G	-
sethoxydim – Low rate	E	P	P	P	P	P	P	P	P	P	P	E	E	E	P	P	P	P	P	P
sethoxydim – High rate	E	P	P	P	P	P	P	P	P	P	P	E	E	E	P	P	P	P	E	P

Note: For additional information, refer to Herbicide Notes, Herbicide Application Table and Product Labels. Control ratings in this chart are provided to facilitate choosing the best treatment and are not a guarantee of performance. Factors such as weather, stage of growth, herbicide rate, water volume etc. can influence ratings.

HERBICIDE APPLICATION TABLE										
For additional information, please refer to Herbicide Notes, Herbicide Selection Table and Product labels.				Formulation	Hazard	Restricted Entry Interval	Pre-Harvest Interval	Group	Buffer Zone	
									Terrestrial	Water <1m
Chemical Name	Product	Product/ha	Surfactant							
BEFORE PLANTING										
EPTC	Eptam	4.25-8.5 L/ha	None	EC	VLH	24	45	8	4	1
glyphosate ¹	Various: Round-up etc.	2.5-7 L/ha	Optional	SN	VLH	12	-	9	15	15
s-metolachlor	Dual II Magnum	1.25-1.75 L/ha	None	EC	VLH	12	-	15	-	29
PRE EMERGENCE										
dimethenamid-p	Outlook	0.756-0.963 L/ha	None	EC	LH	24	40	15	3	1
fomesafen	Reflex	1 L/ha	Optional	SN	LH	12	70	14	15	15
glufosinate	Ignite	2.7-5 L/ha	None	SN	VLH	12	-	10	1	1
glyphosate ¹	Various: Round-up etc.	2.5 L/ha	Optional	SN	VLH	12	-	9	15	15
linuron	Lorox L	2.25-4.5 L/ha	None	SU	VLH	24	-	7	-	-
linuron + s-metolachlor	Lorox L Dual II Magnum	1.9-2.3 L/ha 1.25-1.75 L/ha	None	SU EC	VLH	24	-	7 15	-	29
metribuzin	Sencor, Tricor, Squadron Sencor 500 FL, Metrix	0.55 – 1.5 kg/ha or 0.85 – 2.25 L/ha	None	DF SU	VLH	12	60	5	10	5
metribuzin + glufosinate	Sencor 500 FL, Metrix Ignite	1.1 L/ha 2.7-5 L/ha	None	SU SN	VLH	12	60	5 10	10	5
metribuzin + linuron	Sencor, Tricor, Squadron Lorox L	0.55 – 1.1 kg/ha 1.6-3.75 L/ha	None	DF SU	VLH	24	60	5 7	10	5
metribuzin + paraquat	Sencor 500 FL Gramoxone	1.1 – 1.75 L/ha 2.75 – 4.25 L/ha	None	DF SN	LH	24	60	5 22	20	50
metribuzin + s-metolachlor	Sencor, Tricor, Squadron Dual II Magnum	0.55 – 1.5 kg/ha 1.25-1.75 L/ha	None	DF EC	VLH	12	60	5 15	10	29
metribuzin + s-metolachlor	Tiedown: Tricor + UPI S-MET	0.55 kg/ha 1.3 L/ha	None	DF	VLH	12	60	5 15	10	29
metribuzin/s-metolachlor	Boundary LQD	1.85-2.5 L/ha	None	EC	VLH	12	60	5 15	10	29
metribuzin + sulfentrazone	Sencor STZ	0.6 – 0.8 kg/ha 0.16-0.22 L/ha	None	DF FL	VLH	12	60	5 14	10	5
paraquat	Gramoxone	2.75 – 4.25 L/ha	None	SN	LH	24	-	22	20	50
SOON AFTER EMERGENCE (REFER TO NOTES SECTION)										
metribuzin	Sencor, Tricor, Squadron Sencor 500 FL, Metrix	0.55 – 1.5 kg/ha 0.85 – 2.25 L/ha	None	DF SU	VLH	12	60	5	10	5
metribuzin + rimsulfuron	Titus Pro: Tricor + Prism	0.28 – 0.375 kg/ha 60 g/ha+0.2 % v/v	Non-ionic	DF SG	LH	12	60	5 2	10	5
paraquat	Gramoxone	2.75 – 4.25 L/ha	None	SN	LH	24	-	22	20	50
POST EMERGENCE										
clethodim	Select/Arrow	0.19-0.38 L/ha + 0.5-1.0 % v/v	Amigo or X-Act	EC	VLH	12	60	1	15	-
fluzifop-p-butyl	Venture L	1.0 – 2.0 L/ha	None	EC	VLH	-	45	1	15	15
rimsulfuron	Prism, Rimsulfuron	60 g/ha + 0.2 % v/v	Non-ionic	SG	LH	12	30	2	5	1
sethoxydim	Poast Ultra	0.32-1.1 L/ha + 1-2 L/ha surf	Merge or Assist	EC	VLH	12	80	1	2	1
Formulation: DF – Dry Flowable; EC – Emulsifiable Concentrate; SN – Solution ; SU – Suspension; SG – Soluble Granule Hazard : LH – Low Hazard; VLH – Very Low Hazard Note: 1) Rates are presented for 356 g active/L formulations. Refer to specific product label to ensure correct application rates. Apply after weeds emerge, but before potatoes emerge, no residual activity.										