

KnockOut Extra

HERBICIDE SOLUTION

Water soluble herbicide for non-selective weed control
in cropland systems and non-cropland areas

AGRICULTURAL AND INDUSTRIAL

GUARANTEE: Glyphosate present as isopropylamine salt... 360 g/L

READ THE LABEL AND ATTACHED BOOKLET BEFORE USING

REGISTRATION NO. 29266 PEST CONTROL PRODUCTS ACT

WARNING EYE AND SKIN IRRITANT

Registrant
Libertas Now Inc.
108 Severn Ave., Suite B
Annapolis, MD 21403
USA
1-800-424-9300

NET CONTENTS: 2 x 9.5 L, 30 L, 113 L, 940 L, 1040 L

READ ENTIRE LABEL CAREFULLY BEFORE USE

KnockOut Extra is a non-selective, non-residual herbicide containing 41.0% glyphosate as isopropyl amine salt, formulated as a water soluble liquid. It is used for the control of most herbaceous weeds in agricultural and industrial sites. The product is absorbed through the foliage and translocated throughout the plant down to the root system. Visible symptoms, such as gradual wilting and yellowing, are usually obvious within 2 to 4 days of application to annual weeds and may not be apparent for 7 to 10 days on perennial weeds.

PRECAUTIONS

- KEEP OUT OF REACH OF CHILDREN.
- CAUSES EYE AND SKIN IRRITATION.
- HARMFUL IF SWALLOWED.
- DO NOT GET IN EYES. AVOID CONTACT WITH SKIN.
- WASH HANDS AND EXPOSED SKIN BEFORE EATING, DRINKING OR SMOKING AND AFTER WORK.
- FOR GOOD AGRICULTURAL PRACTICE: For good hygiene practice, wear a long-sleeved shirt, long pants, coverall and chemical resistant gloves during mixing, loading, clean-up and repair activities. Wear goggles or face shield during mixing/loading.
- WASH SPLASHES FROM SKIN AND EYES IMMEDIATELY.

If this pest control product is to be used on a commodity that may be exported to the U.S. and you require information on acceptable residue levels in the U.S., visit CropLife Canada's web site at: www.croplife.ca.

FIRST AID

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing the eye. Call a poison control centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms and non-target plants. Observe buffer zones specified under **BUFFER ZONES**.

Avoid direct application to any body of water populated with fish or used for domestic purposes. Do not use in areas where adverse impact on domestic water or aquatic species is likely. Do not contaminate water by disposal of waste or cleaning of equipment. Avoid all drift or contact with

vegetation for which treatment is not intended as damage or destruction may occur.

PHYSICAL OR CHEMICAL HAZARDS

Spray solutions of this product should be mixed, stored and applied only in stainless steel, aluminum, fibreglass, plastic and plastic-lined containers. **DO NOT MIX, STORE OR APPLY THIS PRODUCT OR SPRAY SOLUTIONS OF THIS PRODUCT IN GALVANIZED STEEL OR UNLINED STEEL (EXCEPT STAINLESS STEEL) CONTAINERS OR SPRAY TANKS.**

This product or the spray solutions of this product react with such containers and tanks to produce hydrogen gas which may form a highly combustible gas mixture. This gas mixture could flash or explode, causing serious personal injury, if ignited by open flame, spark, welder's torch, lighted cigarette or other ignition source.

STORAGE

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEED STUFFS. KEEP ONLY IN ORIGINAL CONTAINER, TIGHTLY CLOSED.

DISPOSAL

RECYCLABLE CONTAINERS

Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
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NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offense under the PEST CONTROL PRODUCTS ACT to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.

(BOOKLET)

GROUP	9	HERBICIDE
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DIRECTIONS FOR USE

PRECAUTIONS FOR USE

Avoid contact with desirable vegetation by direct application or spray drift as severe injury or destruction may result. Avoid drift or overspray to non-target vegetation and wildlife habitats. **DO NOT USE IN GREENHOUSES.** Drain and clean sprayer and parts immediately after using this product.

Do not contaminate water sources by disposal of wastes or cleaning of equipment.

Reduced results may occur if water containing soil is used such as water from ponds and ditches. Poor control may also occur when treating weeds heavily covered with dust.

GENERAL PRODUCT INFORMATION

KnockOut Extra is a water soluble herbicide for non-selective weed control.

KnockOut Extra is applied as a foliar spray for the control of most herbaceous plants. It may be applied through most standard industrial or field type sprayers after dilution and thorough mixing with water in accordance with the booklet instructions.

KnockOut Extra moves through the plant from the point of foliage contact into the root system. Visible effects on most annual weeds occur within 2 to 4 days but on most perennial weeds may not occur until 7 to 10 days.

Extremely cool or cloudy weather at treatment time may slow down the activity of this product and delay visual effects of control. Visible effects are a gradual wilting and yellowing of the plant that advances to complete browning of above ground growth and deterioration of underground plant parts.

Do not treat weeds under poor growing conditions such as drought stress, disease or insect damage, as reduced weed control may result. Reduced results may also occur when treating weeds heavily covered with dust.

KnockOut Extra **does not provide residual weed control.**

For subsequent residual weed control apply a registered residual herbicide. Read and carefully observe cautionary statements and all other information appearing on the labels of all herbicides used.

Heavy rainfall immediately after application may wash the chemical off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, KnockOut Extra is a Group 9 herbicide. Any weed population may contain or develop plants naturally resistant to KnockOut Extra (glyphosate) and other Group 9 herbicides. The resistant biotypes may dominate the weed population if these herbicides are used repeatedly in the same field. Other resistance mechanisms that are not linked to the site of action, but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay herbicide resistance:

- Where possible, rotate the use of KnockOut Extra or other Group 9 herbicides with different herbicide groups that control the same weeds in a field.
- Use tank-mixtures with herbicides from a different group when such use is permitted.
- Herbicide use should be based on an IPM program that includes scouting. Historical information related to herbicide use and crop rotation, and considers tillage (or other mechanical), cultural, biological and other chemical control practices.
- Monitor treated weed populations for resistance development.
- Prevent movement of resistant weed seeds to other fields by cleaning harvesting and tillage equipment and planting clean seed.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or integrated weed-management recommendations for specific crops and weed biotypes.

GENERAL APPLICATION NOTES

Results are best when weeds are actively growing. If weeds have been mowed, allow to return to recommended growth stage.

Delay application until vegetation has emerged to the stage described for control of such vegetation under the Annual and Perennial Weed Control tables of this booklet to provide adequate leaf surface to receive the spray. Unemerged plants arising from underground rhizomes or root stocks of perennials will not be affected by the spray and will continue to grow. For this reason best control of most perennial weeds is obtained when the treatment is made at the late growth stages approaching maturity.

Always use the higher rates of KnockOut Extra per hectare within the recommended range when weed growth is heavy or dense or weeds are growing in an undisturbed (non-cultivated) area.

Weed control may not be satisfactory if this product is applied to weeds growing under poor growing conditions such as drought, flooding, frost, high temperatures, disease or insect damage.

Reduced results may also occur when treating weeds heavily covered with dust.

Heavy rainfall immediately after application may wash the product off the foliage and a repeat treatment may be required. Do not apply if rainfall is forecast for the time of application.

KnockOut Extra should only be mixed with products recommended in this label. Do not mix with any surfactant, pesticide, herbicide oils or any other product other than water unless specified.

TANK MIXES

See charts on Annual and Perennial Weed Control Tank Mixes.

KnockOut Extra may be used with the following herbicides: Pursuit 70DG, Pursuit Commercial (Agriculture), Pardner Herbicide, Banvel II, 2,4-D low volatile ester or amine formulations: See section on Minimum and Zero Tillage Tank Mixtures. KnockOut Extra may be used with the following surfactants: Agral 90, AgSurf, Companion.

Princep Nine-T, Simadex Simazine Flowable, 2,4-D Amine: See section on Tree, Vine and Berry Crops.

DyCler Herbicide, Simazine 80W, Simadex Flowable, 2,4-D amine: See section on Non-cropland and Industrial Uses.

Always refer to the herbicide labels for specific instructions regarding the use of that product.

Trade name	Trademark of
Banvel, Pursuit	BASF
DyCler, Princep Nine-T	Syngenta
Pardner, Simadex	Bayer

VEGETATION CONTROLLED

KnockOut Extra controls many annual and perennial grasses, broadleaf weeds and woody brush and trees when applied as recommended and under the conditions described.

For information on how to control specific weeds, including herbicide rate, refer to the Annual Weed Control and Perennial Weed Control sections of this label. The following is a partial list of the weeds controlled:

WEEDS CONTROLLED

ANNUAL WEEDS

Annual blue grass	<i>Poa annua</i>	Narrow-leaved vetch	<i>Vicia angustifolia</i>
Annual sow-thistle	<i>Sonchus oleraceus</i>	Night-flowering catchfly	<i>Silene noctiflora</i>
Barnyard grass	<i>Echinochloa crusgalli</i>	Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>
Chickweed	<i>Stellaria media</i>	Persian darnel	<i>Lolium persicum</i>
Cleavers	<i>Galium aparine</i>	Prickly lettuce	<i>Lactuca serriola</i>
Cocklebur	<i>Xanthium strumarium</i>	Proso millet	<i>Panicum miliaceum</i>
Common ragweed	<i>Ambrosia artemisiifolia</i>	Redroot pigweed	<i>Amaranthus retroflexus</i>
Corn spurry	<i>Spergula arvensis</i>	Russian thistle	<i>Salsola pestifer</i>
Cow cockle	<i>Saponaria vaccaria</i>	Shepherd's-purse	<i>Capsella bursa-pastoris</i>
Crab grass (large)	<i>Digitaria sanguinalis</i>	Smooth pigweed	<i>Amaranthus hybridus</i>
Crab grass (smooth)	<i>Digitaria ischaemum</i>	Stinkweed	<i>Thlaspi arvense</i>
Dodder	<i>Cuscuta spp.</i>	Stork's bill	<i>Erodium cicutarium</i>
Downy brome	<i>Bromus tectorum</i>	Velvetleaf	<i>Abutilon theophrasti</i>
Eastern black nightshade	<i>Solanum ptycanthum</i>	Volunteer barley	<i>Hordeum spp.</i>
Fall panicum	<i>Panicum dichotomiflorum</i>		

Fleabane (Canada)	<i>Erigeron canadensis</i>	Volunteer canola	<i>Brassica spp.</i>
Flixweed	<i>Descurainia sophia</i>	Volunteer corn	<i>Zea mays</i>
Giant foxtail	<i>Setaria faberii</i>	Volunteer flax	<i>Linum spp.</i>
Green foxtail	<i>Setaria viridis</i>	Volunteer wheat	<i>Triticum spp.</i>
Green smartweed	<i>Polygonum scabrum</i>	Wild buckwheat	<i>Polygonum convolvulus</i>
Hemp-nettle	<i>Galeopsis tetrahit</i>	Wild mustard	<i>Sinapis arvensis</i>
Kochia	<i>Kochia scoparia</i>	Wild oats	<i>Avena fatua</i>
Lady's-thumb	<i>Polygonum persicaria</i>	Wild tomato	<i>Solanum triflorum</i>
Lamb's-quarters	<i>Chenopodium album</i>	Yellow foxtail	<i>Setaria glauca</i>
Narrow-leaved hawk's-beard	<i>Crepis tectorum</i>		

PERENNIAL WEEDS

Absinth (wormwood)	<i>Artemisia absinthium</i>	Foxtail barley	<i>Hordeum jubatum</i>
Alfalfa	<i>Medicago sativa</i>	Heart-podded hoary cress	<i>Cardaria draba</i>
Blue grass (Canada)	<i>Poa compressa</i>	Hemp dogbane	<i>Apocynum cannabinum</i>
Blue grass (Kentucky)	<i>Poa pratensis</i>	Japanese knotweed	<i>Polygonum cuspidatum</i>
Brome (smooth)	<i>Bromus inermis</i>	Perennial sow-thistle	<i>Sonchus arvensis</i>
Canada thistle	<i>Cirsium arvense</i>	Poison-ivy	<i>Rhus radicans</i>
Cattail	<i>Typha latifolia</i>	Purple loosestrife	<i>Lythrum salicaria</i>
Common milkweed	<i>Asclepias syriaca</i>	Quack grass	<i>Agropyron repens</i>
Cottontop	<i>Eriophorum chamissonis</i>	Wire stemmed muhly	<i>Muhlenbergia frondosa</i>
Curled dock	<i>Rumex crispus</i>	Yellow nutsedge	<i>Cyperus esculentus</i>
Dandelion	<i>Taraxacum officinale</i>	Yellow toadflax	<i>Linaria vulgaris</i>
Field bindweed	<i>Convolvulus arvensis</i>		

WOODY WEEDS AND BRUSH

Alder	<i>Alnus spp.</i>	Pine	<i>Pinus spp.</i>
Birch	<i>Betula spp.</i>	Poplar	<i>Populus spp.</i>
Broadleaf meadowsweet	<i>Spiraea latifolia</i>	Raspberry	<i>Rubus spp.</i>
Canadian rhododendron	<i>Rhododendron canadense</i>	Salmonberry	<i>Rubus spp.</i>
Cedar	<i>Thuja spp.</i>	Sheep -laurel	<i>Kalmia angustifolia</i>
Cherry	<i>Prunus spp.</i>	Snowberry (western)	<i>Symphoricarpos occidentalis</i>
Douglas fir	<i>Pseudotsuga spp.</i>	Sweet-fern	<i>Comptonia peregrina</i>
Hemlock	<i>Tsuga spp.</i>	Willow	<i>Salix spp.</i>
Maple	<i>Acer spp.</i>	Withrod	<i>Viburnum cassinoides</i>
Mountain Fly-honeysuckle	<i>Lonicera Vvillosa</i>		

APPLICATION EQUIPMENT AND MIXING INSTRUCTIONS

GROUND BOOM AND BOOMLESS SPRAYERS

Mixing:

For field or industrial type sprayers, fill the spray tank with one half the required amount of water. Add the proper amount of KnockOut Extra (see appropriate table) and mix well before adding the remaining portion of water.

Placing the filling hose below the surface of the liquid solution will prevent any excessive foaming.

Remove the hose from the tank immediately after filling to avoid back siphoning into water

source. (A one-way valve should be installed to prevent back siphoning.) Use of mechanical agitators may cause excessive foaming. By-pass lines should terminate at the bottom of the tank.

Application:

Use flat fan nozzles in boom sprayers. To control perennial weeds, and woody brush and trees as listed, apply KnockOut Extra in 50 to 300 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure.

To control annual weeds as listed, apply KnockOut Extra in 50 L to 100 L of water per hectare as a broadcast spray. Use no more than 275 kPa pressure.

KNAPSACK SPRAYERS, HAND-HELD AND HIGH VOLUME EQUIPMENT

High volume spraying utilizes handguns or other suitable nozzle arrangements to apply a directed spray to weeds, woody brush and trees. Use coarse sprays only.

Mixing:

Mix the proper amount of KnockOut Extra with water in a large container.

Fill the sprayer with the mixed solution.

Unless otherwise stated, make a 1% solution of KnockOut Extra in water (1 L of KnockOut Extra in 100 L of water). A 2% solution (2 L of KnockOut Extra per 100 L of water) should be used on harder to control perennials.

Application:

Spray coverage should be uniform and complete. Apply on a spray-to-wet basis. Do not spray to the point of runoff.

Hand gun application should be properly directed to avoid spraying desirable plants.

MIST BLOWERS

For control of woody weeds, brush and trees listed in the Vegetation Controlled lists, use the recommended rate of KnockOut Extra in at least 200 L of water per hectare.

WIPER, WICK AND ROLLER EQUIPMENT

These applicators apply KnockOut Extra solution directly onto the weeds by contacting the weed with an absorbent material containing the herbicide solution. Weeds should be a minimum 15 cm above the desired vegetation to prevent contact of KnockOut Extra with the desired vegetation.

Mixing:

Mix the proper amount of KnockOut Extra with water in a large container. Use this mixed solution in the wiper, wick or roller equipment.

Application:

These applicators can be used to control weeds in:

- industrial sites, tree plantings and non-crop sites as specified;
- the following agricultural crops: apple, cherry, peach, pear and plum orchards, grape vineyards, soybeans, dry beans, strawberries and cranberries. (Note: applications must be made before initial pod set in soybeans and dry beans.)

The applicator should be adjusted so that the contact point of the wiper, roller or wick is at least 5 cm above the desirable vegetation. Droplets or foam of the KnockOut Extra solution settling on desirable vegetation may result in discolouration, stunting or destruction.

Best results may be obtained when more of the weed is exposed to the herbicide solution. It is recommended that two applications be made in opposite directions, if possible.

Weeds not contacted will not be affected. This may occur in dense clumps, severe infestation, or when the height of the weeds varies so that not all weeds are contacted. In these instances, a repeat treatment may be necessary.

AVOID CONTACT WITH DESIRABLE VEGETATION.

Wiper, wick, roller application notes:

Maintain wiper equipment in good operating condition. Care must be taken with all types of wipers to ensure that the absorbent material does not become over saturated, causing the herbicide to drip onto desirable vegetation.

Avoid leakage or dripping onto desirable vegetation.

Adjust height or wiper applicator to ensure proper contact with weeds.

Keep wiping surfaces clean.

Maintain recommended roller speed on roller applicators while in use.
DO NOT use wiper equipment when weeds are wet.

DO NOT operate equipment at ground speeds less than 4 or greater than 10 km/h. Weed control may be affected by speed of application equipment. As weed density increases, reduce equipment ground speed to ensure good coverage of weeds.

Be aware that on sloping ground the herbicide solution may migrate, causing dripping on the lower end and drying on the upper end of the wiper applicator.

Variation in equipment design may affect weed control. With wiper applicators, the wiping material and its orientation must allow delivery of sufficient quantities of the recommended KnockOut Extra solution directly to the weed.

Mix only the amount of solution to be used during a one day period, as reduced activity may result from use of leftover solution. Thoroughly drain and clean all equipment immediately after use.

AERIAL APPLICATION

Directions for Use (for additional information see section on aerial application on Industrial Sites Rights-of-Way ONLY)

Apply only by fixed-wing or rotary aircraft equipment which has been functionally and operationally calibrated for the atmospheric conditions of the area and the application rates and conditions of this label.

Label rates, conditions and precautions are product specific. Read and understand the entire label before opening this product. Apply only at the rate recommended for aerial application on this label. Where no rate for aerial application appears for the specific use, this product cannot be applied by any type of aerial equipment. Ensure uniform application. To avoid streaked, uneven or overlapped application, use appropriate marking devices. The use of a spotter plane is recommended.

AERIAL USE PRECAUTIONS

BUFFER ZONES

- i) DO NOT apply during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural and Biological Engineers (ASABE) coarse classification.
- ii) Aerial Applications: DO NOT apply when wind speed is greater than 16 km/h (pre-harvest) or 8 km/h (rights-of-way) at flying height at the site of application. DO NOT allow boom width to exceed 65% of wingspan.
- iii) Buffer Zones: The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows and shrublands) and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands).

Method of application	Buffer zones (metres) required for protection of:		
	Aquatic habitat		Terrestrial habitat
Field sprayer*	15		15
Aerial** (rights-of-way only)	One application per season	Two applications per season (i.e. buffer zone below is for 2nd application)	-
Fixed wing:	50	85	-
Rotary wing:	20	35	-

*For field sprayers, buffer zones can be reduced by 70% when using shrouds or 30% when using cones. When a tank mixture is used, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixtures.

**Coarse ASABE (VMD = 385.2 µm); Release height from fixed wing aircraft = 10 m.

Apply only when weather conditions at the treatment site allow for complete and even crop coverage. Apply only under conditions of good practice specific to aerial application as outlined in the *National Aerial Pesticide Application Manual*, developed by the Federal/Provincial/Territorial Committee on Pest Management and Pesticides.

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed.

Do not angle nozzles forward into the airstream, and do not increase spray volume by increasing nozzle pressure.

Coarse sprays are less likely to drift, therefore, avoid combinations of pressure and nozzle type that will result in fine particles (mist). Do not apply during periods of dead calm or when wind velocity and direction pose a risk of spray drift. Do not spray when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelter-belt) or aquatic habitat.

OPERATOR PRECAUTIONS

Do not allow the pilot to mix chemicals to be loaded onto the aircraft. Loading of premixed chemicals with a closed system is permitted.

It is desirable that the pilot have communication capabilities at each treatment site at the time of application.

The field crew and the mixer/loaders must wear chemical resistant gloves, coveralls and goggles or face shield during mixing/loading, cleanup and repair. Follow the more stringent label precautions in cases where the operator precautions exceed the generic label recommendations on the existing ground boom label.

All personnel on the job site must wash hands and face thoroughly before eating and drinking. Protective clothing, aircraft cockpit and vehicle cabs must be decontaminated regularly.

PRODUCT SPECIFIC PRECAUTIONS

Read and understand the entire label before opening this product. If you have questions, call the manufacturer or obtain technical advice from the distributor or your provincial agricultural representative. Application of this specific product must meet and/or conform to the following:

Volume: Apply the recommended rate in a minimum spray volume of 30-100 litres per hectare.

Thoroughly wash aircraft, especially landing gear, after each day of spraying to remove residues of KnockOut Extra accumulated during spraying or from spills. **PROLONGED EXPOSURE OF THIS PRODUCT TO UNCOATED STEEL SURFACES MAY RESULT IN CORROSION AND POSSIBLE FAILURE OF THE PART. LANDING GEAR ARE MOST SUSCEPTIBLE.** The maintenance of an organic coating (paint) which meets aerospace specification MIL-C-38412 may prevent corrosion.

AGRICULTURAL AND CROPLAND USES

The following are use situations for KnockOut Extra. The type of vegetation present and the use situation will dictate the choice of application equipment. Information on the equipment selected to apply KnockOut Extra can be found in the Application Equipment and Mixing Instructions section. Use rates can then be selected from the Annual and Perennial Weed Control charts.

PRE-PLANT TREATMENT

KnockOut Extra can be applied prior to planting of all crops for control of emerged weeds listed on the label. Ensure weeds are at the recommended growth stage at the time of application. Apply BEFORE seeding or transplanting crop.

SUMMER FALLOW

KnockOut Extra may be applied in summer fallow to control weeds listed on the label. Ensure weeds are at the recommended growth stage and actively growing at the time of application. Reduced control may result if weeds are drought stressed. Repeat treatments may be necessary to control later germinating weeds.

MINIMUM AND ZERO TILLAGE SYSTEMS

(All field crops including cereals, oilseeds, pulses, forages and corn)

KnockOut Extra may be applied before or after seeding but before crop emerges for control of emerged weeds in minimum and zero tillage cropping systems for all field crops. Weeds should be treated at the growth stage according to the Annual and Perennial Weed Control charts.

DO NOT APPLY AFTER CROP EMERGENCE.

Since KnockOut Extra does not provide residual control, application too far in advance of seeding may allow weeds to germinate between application and crop emergence.

MINIMUM AND ZERO TILLAGE TANK MIXES

KnockOut Extra plus Pardner (bromoxynil), can be applied prior to seeding or after seeding, but before crop emergence in wheat, barley and oats. See chart on Tank Mixes for Annual Weed Control.

KnockOut Extra plus Pursuit can be applied before or after seeding, but prior to crop emergence in soybeans. KnockOut Extra will control emerged weeds listed on this label when applied as directed (see Weeds Controlled lists). Pursuit will control weeds germinating from seed. Add the recommended rates of products in 100 L of water/ha following the instructions on the KnockOut Extra and Pursuit herbicide label.

Refer to the Pursuit label for further information on weeds controlled, application directions and use precautions.

Only SOYBEANS, FIELD CORN, SPRING BARLEY, SPRING WHEAT and WINTER WHEAT may be planted the season following a Pursuit application. Winter wheat may be planted the same year as a Pursuit application to soybeans, but not earlier than 120 days after the application.

DO NOT APPLY AFTER CROP EMERGENCE.

KnockOut Extra PLUS TANK MIXES FOR ANNUAL WEED CONTROL

SUMMER FALLOW AND MINIMUM TILLAGE SYSTEMS

Tank mixtures	Rate (L/ha)	Weeds controlled++	Comments (apply in 50-100 L/ha water) 350 mL surfactant (see note below)
KnockOut Extra + BANVEL II	0.75-1.0 + 0.29	Volunteer cereal, wild oats, green foxtail, wild mustard, flixweed*, lamb's-quarters, lady's-thumb, stinkweed, kochia, Russian thistle, cow cockle, redroot pigweed**, wild buckwheat**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds taller than 8cm KnockOut Extra applied at 1 L/ha rate only. **Suppression only. See other tank mixtures for control options.
KnockOut Extra + PARDNER	0.75-1.0 + 1.25	Volunteer cereals, green foxtail, wild mustard, lady's-thumb, stinkweed, wild buckwheat*, redroot pigweed**, kochia**, wild oats**	This tank mix for summer fallow use only; and prior to planting wheat, oats and barley in minimum tillage systems. Weeds should be less than 15cm and actively growing. Use higher rate if weeds are taller than 8 cm *Use KnockOut Extra at 1 L/ha rate only for wild buckwheat control. **1 L rate, suppression only. See other tank mixtures for control options.

Tank mixtures	Rate (L/ha)	Weeds controlled	Comments (apply in 50-100 L/ha water) 350 mL surfactant (see note below)
KnockOut Extra + 2,4-D [#]	0.75-1.0 + 1.2	Volunteer cereals, wild oats*, green foxtail*, volunteer canola (rapeseed), wild mustard, flixweed, redroot pigweed, lady's-thumb, stinkweed, kochia, lamb's-quarters**, Russian thistle**	This tank mix for summer fallow use only. Weeds should be less than 15 cm tall and actively growing. Use higher rate if weeds are taller than 8 cm. *Use KnockOut Extra at 1.0 L/ha rate only for wild oats and green foxtail control. **Suppression only. See other tank mixtures for control options.

[#]0.56 kg a.i./ha of 2,4-D. Adjust rates accordingly for other 2,4-D formulations. Use only low volatile ester or amine formulations of 2,4-D.

⁺⁺For foxtail barley suppression, refer to chart on Annual Weed Control.

NOTE: All KnockOut Extra tank mixtures for annual weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90, AgSurf and Companion. Surfactant should be added at a rate of 350 mL per hectare in 50-100 L of clean water.

KnockOut Extra **TANK MIXES FOR PERENNIAL WEED**

CONTROL SUMMER FALLOW OR FALL STUBBLE

Tank mixtures	Rate (L/ha)	Weeds controlled	Comments (apply in 50-100 L/ha water) 350 mL surfactant (see note below)
KnockOut Extra + BANVEL II	1.7 + 1.25	Canada thistle, perennial sow-thistle	Summer fallow: cultivate in the spring and apply when the majority of thistles are 15 to 25cm tall and before the bud stage. Cultivate 3 weeks after application. Fall Stubble: apply to actively growing thistles at least 2 weeks prior to a killing frost.

NOTE: All KnockOut Extra tank mixtures for perennial weed control require the addition of a non-ionic surfactant registered for this use, such as Agral 90, AgSurf or Companion.

Grow only cereals, canola (including rapeseed), soybeans, field corn, sweet corn, or white beans after application of this tank-mix.

If application is made after September 1st, or if soil moisture levels are extremely low after application, crop injury may occur in the spring following application.

FALL STUBBLE

Apply in the fall as a post-harvest stubble treatment for control of perennial weeds including quack grass and Canada thistle. Allow the Canada thistle and quack grass to regrow to 20-25 cm tall. Straw should be removed or evenly spread to allow for proper regrowth and spray coverage. Heavy frost prior to treatment may decrease control.

SPOT TREATMENT (IN CROP)

KnockOut Extra may be applied for the control of Canada thistle, quack grass and other perennial weeds in forage crops, barley, wheat, oats, soybeans and legumes including seed production. Treatments may be made up to heading of small grain, initial pod set on soybeans and legumes, silking of corn and emergence of seed heads. Avoid drift beyond the treated area.

Application can be made using a boom sprayer, knapsack or high volume equipment. (See Application Equipment and Mixing Instruction section.)

Applications should be made using the same growth stages as listed in the Annual and Perennial Weed Control charts. Or use a 1% solution for annual weeds and quack grass and a 2% solution for other perennial weeds (a 1% solution equals 1 L of KnockOut Extra in 100 litres of spray solution). The 1 and 2 per cent solutions should be applied to wet, but not to run off.

NOTE: The crop in the treated area will be killed by the treatment.

DO NOT APPLY IF CROP GROWTH HAS ADVANCED BEYOND SEED SET. ALLOW 3 TO 5 DAYS BEFORE GRAZING IN, OR HARVESTING TREATED AREAS AS FORAGES.

FORAGE GRASSES AND LEGUMES

Use KnockOut Extra to control or suppress existing vegetation prior to emergence of legumes and grasses. If legumes and grasses are underseeded with a cover crop, KnockOut Extra must be applied prior to planting any cover crop.

PASTURE RENOVATION

KnockOut Extra may be used to control or suppress existing vegetation for zero tillage seeding of legume or grass pasture into established sod for renovation. Weed growth should be at least 20 cm high and most weed seeds should have germinated at the time of spraying.

FORAGE SEED PRODUCTION (FOR SPOT TREATMENT)

KnockOut Extra may be applied as a spot treatment for control of perennial weeds such as quack grass and Canada thistle in seed fields. Apply to weeds at least 20-25 cm in height but before emergence of seed head.

The crop in the treated area will be killed. For this reason, take particular care to avoid drift outside the treated area.

WEED CONTROL IN GLYPHOSATE TOLERANT CANOLA

WARNING: APPLY KnockOut Extra ON GLYPHOSATE TOLERANT CANOLA VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (I.E. CERTIFIED) GLYPHOSATE TOLERANT CANOLA SEED. CANOLA WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

- For additional information and precautions refer to the General Product Information, General Application Notes and Application Equipment and Mixing Instructions sections of the KnockOut Extra label.
- Apply KnockOut Extra in glyphosate tolerant canola only as directed in the following weed control table.
- Some short-term, visual yellowing may occur when KnockOut Extra is applied at the late application 4 to 6 leaf stage of the crop. This effect is temporary and will not influence crop growth, maturity or yield.

DO NOT APPLY BY AIR.

The following table describes the rate and specific application instructions for control of annual and perennial weeds in glyphosate tolerant canola varieties.

Rate (L/ha)	Growth stage of crop	Weeds controlled	Comments (apply in 50-100 L/ha water)
0.825-1.25	0 to 6 leaf	<p><i>Annual grasses</i></p> <p>Wild oats, green foxtail, volunteer barley, volunteer wheat</p> <p><i>Annual broadleaves</i></p> <p>Stinkweed, redroot pigweed, wild mustard, Russian thistle, lamb's-quarters, non-glyphosate tolerant volunteer canola (rapeseed), hemp-nettle, lady's-thumb, kochia, chickweed, corn spurry, wild</p>	<p>No additional surfactant is required.</p> <p>Repeat applications may be required if a second flush of weeds germinates prior to canopy closure.</p> <p>Ensure the crop has not advanced beyond the recommended growth stage.</p> <p>Use the 1.25 L/ha rate for control of these weeds at all crop growth stages.</p> <p>The lower rate can be used for</p>

Rate (L/ha)	Growth stage of crop	Weeds controlled	Comments (apply in 50-100 L/ha water)
		tomato, cleavers*, wild buckwheat*, shepherd's-purse*, cow cockle*, night-flowering catchfly*, smartweed* <i>Perennials (suppression) **</i> Canada thistle, perennial sow-thistle, dandelion <i>Perennials (season long control)</i> Quack grass**, Canada thistle***, perennial sow-thistle***	control of shepherd's purse, cow cockle and night-flowering catchfly at the 1-3 leaf stage of the crop, or for the control of smartweed at the 4-6 leaf stage. ** A single application at the 1.25 L/ha rate is required. *** Sequential applications at the 1.25 L/ha rate are required. For sequential applications, ensure the crop has not advanced beyond the recommended growth stage. Maximum 2.5L/ha is allowed for postemergence use.

WEED CONTROL IN GLYPHOSATE TOLERANT SOYBEANS

WARNING: APPLY KnockOut Extra ON GLYPHOSATE TOLERANT SOYBEAN VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) SOYBEAN SEED DESIGNATED AS GLYPHOSATE TOLERANT. SOYBEANS WHICH ARE NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.

DO NOT APPLY BY AIR.

Rate (L/ha)	Growth stage of crop	Weeds controlled*	Comments (use 100-200 L/ha water volumes)
2.5	First trifoliolate leaf stage through flowering	Velvetleaf, common ragweed, lamb's-quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, eastern black nightshade,	A second 2.5 L/ha application may be used for late weed flushes emerging after the initial treatment. This second application must be made not later than the flowering stage of the soybean.

Rate (L/ha)	Growth stage of crop	Weeds controlled*	Comments (use 100-200 L/ha water volumes)
		wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quack grass	
2.5-5.0	First trifoliolate through to flowering	Perennial sow-thistle, Canada thistle, wire stemmed muhly	A single application at the higher rate or a second (sequential) application of 2.5 L/ha will improve control in heavy weed infestations. If sequential applications of 2.5 L/ha are used they should be at least 2 weeks apart for best results on perennial weeds. This second application must be made no later than the flowering stage of the soybean. Perennial sow-thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. Wire stemmed muhly should be 10-20 cm in height and actively growing. Plants not fully emerged at time of application will escape the treatment.
5.0	First trifoliolate leaf stage through flowering	All weeds listed above plus common milkweed** and yellow nutsedge**	Use a maximum of 5.0 L/ha per season. **Will also be controlled by sequential applications of 2.5 L/ha. Applications should be at least 2 weeks apart for optimum control. This second application must be made no later than the flowering stage of the soybean. Common milkweed should be at least 15-60 cm in height and actively growing. Plants not fully emerged at the time of treatment will not be controlled.

* Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

WEED CONTROL IN GLYPHOSATE TOLERANT CORN

WARNING: APPLY KnockOut Extra ON GLYPHOSATE TOLERANT CORN VARIETIES ONLY.

NOTE: ALWAYS USE PEDIGREED (CERTIFIED) CORN SEED DESIGNATED AS GLYPHOSATE TOLERANT. CORN WHICH IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT

DO NOT APPLY BY AIR.

Rate (L/ha)	Growth stage of crop	Weeds controlled*	Comments (use 100-200 L/ha water volumes)
2.5	Up to and including 8 leaf stage	Velvetleaf, common ragweed, common lamb's-quarters, redroot pigweed, smooth pigweed, cocklebur, green smartweed, lady's-thumb, Pennsylvania smartweed, eastern black nightshade, wild mustard, wild buckwheat, foxtail (green, yellow, giant), barnyard grass, crabgrass (smooth, large), quack grass, fall panicum, proso millet, wild oats, volunteer barley, volunteer wheat, stinkweed, wild mustard, Russian thistle, non glyphosate tolerant volunteer canola (rapeseed), hemp nettle, kochia, chickweed, corn spurry, wild tomato, cleavers, shepherd's purse, cow cockle, night-flowering catchfly, stock's bill, flaxweed,	A second application of 2.5 L may be used for late weed flushes emerging after the initial treatment. This second application must be made no later than the 8 leaf stage of the corn. Use no more than 5.0 L/ha (applied as 2 sequential applications).

Rate (L/ha)	Growth stage of crop	Weeds controlled*	Comments (use 100-200 L/ha water volumes)
		narrow-leaved hawk's-beard	
2.5	Up to and including 8 leaf stage	Common milkweed, yellow nutsedge	For control of common milkweed and yellow nutsedge use two applications of 2.5 L/ha. This second application must be made no later than the 8 leaf stage of the corn. Milkweed should be 15-60 cm in height and actively growing. Yellow nutsedge should be 5-15 cm in height and actively growing.
2.5	Up to and including 8 leaf stage	Perennial sow-thistle, Canada thistle, wire stemmed muhly	A second (sequential) application of 2.5 L/ha will improve control in heavy weed infestations. If sequential applications are used, they should be at least 2 weeks apart for best results on perennial weeds. This second application must be made no later than the 8 leaf stage of the corn. Perennial sow-thistle and Canada thistle should be from the rosette stage to 50 cm in height and actively growing. Wire stemmed muhly should be 10-20 cm in height and actively growing. Plants not fully emerged at the time of application will escape treatment.

*Weeds will be more easily controlled and early crop competition avoided with applications made when the weeds are small. Control of weeds greater than 25 cm in height will be inconsistent, although some weeds may be controlled.

PRE-HARVEST CONTROL OF QUACK GRASS, CANADA THISTLE AND COMMON MILKWEED

SEASON-LONG CONTROL OF PERENNIAL SOW-THISTLE AND HARVEST MANAGEMENT

For control of quack grass, Canada thistle and common milkweed, and season-long control of perennial sow-thistle, KnockOut Extra can be applied prior to harvest of wheat, barley (including malting barley), canola (rapeseed, including glyphosate tolerant varieties), flax (including low linolenic acid varieties), lentils, peas, dry beans and soybeans. DO NOT apply to crops grown for seed production.

This treatment may also provide harvest management benefits, by drying down crop and weed vegetative growth, for example, where late flushes of annual weeds, green vegetative crop growth, or late tillering may interfere with harvest operations.

EXTREMELY COOL, WET AND/OR CLOUDY WEATHER CONDITIONS BETWEEN THE TIME OF APPLICATION AND THE ANTICIPATED HARVEST DATE MAY SLOW THE ACTIVITY OF THIS PRODUCT, THEREBY DELAYING CROP DRYDOWN AND HARVEST DATE.

KnockOut Extra should be applied pre-harvest at 2.5 L/ha in 50 to 100 L/ha of clean water, by ground application only.

When to apply: Apply only when the crop has 30% or less grain moisture content. This stage typically occurs 7 to 14 days before harvest. Consult the table Guidelines for Timing of Pre-harvest Applications for visual indicators of this stage in each crop. For the best weed control results, quack grass should be actively growing and have at least 4 to 5 green leaves. Canada thistle and perennial sow-thistle should be actively growing and at or beyond the bud stage for best results. Common milkweed should be at the bud to bloom stage and actively growing for best results. Applications for weed control (not for harvest management) must be made at the correct stage of both weed and crop growth.

Apply only during the period 7-14 days before harvest to ensure best weed control and to maximize harvest management benefits. Earlier application may reduce crop yield and/or quality, and may lead to excess glyphosate residues in the crop.

Use Precautions: Overspray or drift to important wildlife habitats such as bodies of water, wetlands (e.g. sloughs), shelterbelts, woodlots and other cover on the edges of fields frequented by wildlife, should be avoided. Leave a 15 meter buffer zone between the last spray swath and the edge of any of these habitats.

Do not expose or contaminate any body of water or non-target vegetation by direct application, spray drift, or when cleaning and rinsing spray equipment.

DO NOT APPLY BY AIRCRAFT.

GUIDELINES FOR TIMING OF PRE-HARVEST APPLICATIONS

Crop(s)	Percent grain moisture	Visual symptoms
WHEAT/BARLEY/OATS	Less than 30	Hard dough stage; a thumbnail impression remains in seed
CANOLA	Less than 30	Pods are green to yellow; most seeds are yellow to brown
FLAX (including low linolenic acid varieties)	Less than 30	Majority (75%-80%) of bolls are brown
PEAS	Less than 30	Majority (75%-80%) of pods are brown
LENTILS	Less than 30	Lowermost pods (bottom 15%) are brown and seed rattles
DRY BEANS	Less than 30	Stems are green to brown in colour; pods are mature (yellow to brown in color); 80%-90% leaf drop (original leaves)
SOYBEANS	Less than 30	Stems are green to brown in color; pod tissue is dry and brown in appearance; 80%-90% leaf drop

TREE, VINE AND BERRY CROPS

KnockOut Extra controls annual and perennial weeds in established vineyards or orchards, in blueberry, cranberry and strawberry, sugar beets or for site preparation prior to transplanting tree or vine crops.

See table on Weed Control in Tree, Berry and Vine Crops for rate and time of application information.

This product does not provide residual or pre-emergent weed control. Repeat applications may be necessary to control weeds originating from underground parts of treated weeds or from seeds. For subsequent weed control, follow a program using residual herbicides or use repeated applications of KnockOut Extra.

DO NOT APPLY MORE THAN 35 L/HA OF KnockOut Extra PER YEAR.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF THE HERBICIDE SOLUTION, SPRAY DRIFT, OR MIST WITH FOLIAGE OR GREEN BARK OF TRUNK, BRANCHES, SUCKERS, FRUIT, CANES OF BLUEBERRY BUSHES OR OTHER PARTS OF TREES OR VINES. CONTACT OF THIS PRODUCT WITH OTHER THAN MATURE BROWN BARK CAN RESULT IN SERIOUS CROP DAMAGE.

Allow annual and perennial weeds that have been mowed, grazed or cut time to regrow to recommended growth stage for treatment.

Applications may be made with boom sprayer, shielded sprayers, hand held and high volume orchard gun or with wiper, wick or roller equipment (orchards, dry beans, cranberry and

strawberry only).

TREE PLANTING

(shelterbelts, nursery stock, woody ornamentals)

KnockOut Extra may be applied to control annual and perennial weeds listed on this label. This may be used for site preparation prior to establishing plantations, or as a post-directed spray in established plantations of the following species:

DECIDUOUS	CONIFEROUS
Ash – <i>Fraxinus</i> spp.	Fir – <i>Abies</i> spp.
Caragana – <i>Caragana</i> spp.	Juniper – <i>Juniperus</i> spp.
Cherry – <i>Prunus</i> spp.	Pine – <i>Pinus</i> spp.
Elm – <i>Ulmus</i> spp.	Spruce – <i>Picea</i> spp.
Lilac – <i>Syringa</i> spp.	Yew – <i>Taxus</i> spp.
Maple – <i>Acer</i> spp.	
Mountain Ash – <i>Sorbus</i> spp.	
Poplar – <i>Populus</i> spp.	
Russian Olive – <i>Elaeagnus</i> spp.	
Willow – <i>Salix</i> spp.	

SPRAY MAY CONTACT MATURE BROWN BARK ONLY. Avoid contact with non-target plants, foliage, suckers of established plantations.

NOTE: This product is not recommended for use as an over-the-top broadcast spray in forest tree nurseries or in Christmas tree plantations. Application in such sites should be limited to directed sprays. DO NOT treat Christmas tree plantations in the year of anticipated harvest.

NON-CROPLAND AND INDUSTRIAL USES

When applied as recommended under the conditions described, KnockOut Extra will control weeds in the non-cropland and industrial uses as listed in the Weed Control in Non-Cropland, Industrial Uses chart.

TURFGRASS

KnockOut Extra may be applied to control existing vegetation prior to turfgrass establishment or renovation. DO NOT DISTURB SOIL OR UNDERGROUND PLANT PARTS BEFORE TREATMENT.

Where existing vegetation is growing under field or unmowed conditions, apply KnockOut Extra to actively growing weeds at the growth stages given in the tables Annual and Perennial Weed Control. Where the vegetation is growing under mowed turfgrass management, apply KnockOut Extra after omitting at least one regular mowing to allow sufficient growth for good spray interception and translocation into underground plant parts.

Tillage or renovation techniques, such as vertical mowing, coring or slicing, should be delayed

for 7 days after application to allow proper translocation into the underground plant parts. Delay establishment of the turfgrass to determine if regrowth from escaped underground plant parts occurs. When repeat treatments are necessary, sufficient weed regrowth must be attained prior to application.

AVOID ALL CONTACT WITH DESIRABLE VEGETATION IN THE VICINITY OF THE RENOVATION OR ESTABLISHMENT AREA.

TREE INJECTION APPLICATIONS

See VEGETATION CONTROLLED lists for species controlled.

Trees may be controlled if KnockOut Extra is injected directly into the trunk using suitable equipment which penetrates into the living tissue.

KnockOut Extra is to be used at a rate of 1 mL (undiluted product) per 10 cm of trunk diameter at chest height. The injections should be spaced evenly around the tree and below any major branches. Application may be done during periods of active growth and full leaf expansion.

Control of trees greater than 20 cm may not be acceptable. Total control may not be evident for 1-2 years following treatment. This treatment will only provide suppression of big leaf maple; late fall application will provide optimum suppression of big leaf maple.

CUT STUMP APPLICATION

See Vegetation Controlled lists for species controlled.

Woody vegetation may be controlled by the application of this product to freshly cut stumps to prevent regrowth. Application must be made using low-pressure equipment, (i.e. squirt bottle).

Apply KnockOut Extra immediately to the surface of the freshly cut stump (i.e. within 5 minutes), at a rate of 0.5 mL KnockOut Extra for every 5 cm of trunk diameter at chest height. Treat only the cambial tissues (outer edge) of the cut surface. Do not treat the central area, exposed roots or bark.

This treatment may be made at any time of year, except during heavy sap flow or when freezing temperatures prevent application of KnockOut Extra. A water soluble dye added to the solution may be used as a treatment indicator. Total control may not be apparent until 1-2 years after treatment.

WOODY BRUSH AND TREES (FOLIAR APPLICATIONS)

Spray coverage should be uniform and complete. Do not spray to the point of run off.

Do not allow spray drift to contact desirable vegetation as severe injury or destruction may occur. For woody brush and trees, early season applications may take 30-45 days for symptoms to develop on the target species. Late season application may be made to species that have some autumn colours provided no major leaf drop has occurred. Control will be observed the

following spring.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASSES, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

For woody brush and trees, apply 3 to 6 litres of KnockOut Extra per hectare. Use ground boom or boomless equipment or apply as a 1% to 2% solution using hand held high volume equipment. Use the 6 L/ha rate for maple, alder and willow* species, as well as hard to control perennial weed species (*suppression only).

INDUSTRIAL, RIGHTS-OF WAY, RECREATIONAL AND PUBLIC AREAS

KnockOut Extra may be applied to control brush, trees and annual and perennial weeds listed on this label in industrial and rights-of-way areas such as: Railways, pipelines, pumping station, forest roadsides, highways, petroleum tank farms, telephone and power rights-of-way, etc. and in recreational and public areas, such as: Parks, golf courses, schoolyards, airports and other public areas.

NOTE: for all industrial sites, rights-of-way, recreational and public areas, repeat treatments may be necessary to control regeneration of new growth.

EXTREME CARE MUST BE EXERCISED TO AVOID CONTACT OF SPRAY WITH FOLIAGE OF DESIRABLE TURFGRASS, TREES, SHRUBS, OR OTHER DESIRABLE VEGETATION SINCE SEVERE DAMAGE OR DESTRUCTION MAY RESULT.

Ground Application for all non-cropland uses: For woody brush and trees, apply KnockOut Extra at 3 to 6 L/ha using ground boom or boomless or mist blower equipment. Or, apply as a 1 to 2% solution using handheld high volume equipment. Use the higher rate for maple, alder and willow* species, and for hard to control perennial weeds (*suppression only).

Apply as directed to foliage of actively growing vegetation. Spray coverage should be uniform and complete. Do not spray to the point of runoff, or allow spray drift to contact desirable vegetation as severe injury or destruction may occur.

Mowed or tilled weeds should be allowed to reach optimum growth stage at time of application.

Repeat treatment may be necessary to control regeneration or new growth.

DO NOT APPLY UNDER WIND OR OTHER CONDITIONS THAT ALLOW DRIFT.

Aerial Application for industrial rights-of-way ONLY:

Refer to the general guidelines for aerial application as well as specific application instructions and buffer zones in this section.

For applications to right-of-way, buffer zones for protection of sensitive terrestrial habitats are not required; however the best available application strategies will minimize offsite drift, including meteorological conditions (e.g. wind direction, low wind speed) and spray equipment (e.g. coarse droplets size, minimizing height above canopy) should be used. Application must, however, observe specified the buffer zones for protection of sensitive aquatic habitat.

For woody brush and trees, apply 3-6 L/ha KnockOut Extra in 30 to 100 L of water. Use 6 L/ha for maple, alder and willow* species, and for hard to control perennial weed species (*suppression only). As density of vegetation increases, spray volume should be increased within the allowed range to ensure complete coverage.

Apply only in wind conditions in compliance with local and/or provincial regulations. Do not apply when other climatic conditions, including lesser wind velocities, will allow significant drift to occur.

PURPLE LOOSESTRIFE CONTROL

DO NOT TREAT PLANTS OVER OPEN WATER. KnockOut Extra is not registered for direct application to bodies of water.

Treat when plants are actively growing at or beyond the bloom stage. If using hand held equipment, spray to wet. For wiper applications, see Wiper, Wick and Roller Equipment section.

Where feasible, remove flower heads before treatment to ensure prevention of seed set.

For large (> 1.6 ha) monocultures of purple loosestrife, work from the periphery inward in successive years to allow competing vegetation to invade the treated area.

A long-term control strategy should include measures to control both established plants and seedlings. Sprayed areas should be monitored to determine the appropriate follow-up management. Early detection and treatment of second and third generation seedlings is important to prevent re-infestation of purple loosestrife. Desirable native plant communities will then have a chance to become re-established.

WEED CONTROL IN NON-CROPLAND, INDUSTRIAL USES

Weeds	Ground application			Comments
	Boom application			
	Rate (L/ha)	Water volume (L/ha)	Hand held high volume application (% solution)	
Annual grasses and broad leaves	2.25-3.5	50-100	1	Actively growing weeds
Perennial Weeds	2.5	50-300	1	Actively growing weeds. Add 0.5% v/v of a recommended surfactant when using more than 150 L of water. (See Minimum and Zero Tillage Tank Mixes.) Use higher rate for heavy infestations and long term control. See purple loosestrife control section for instructions on application. Summer through fall; fall is best.
Quack grass	4.75-7.0	50-300	2	
Canada thistle (bud stage)	4.75-7.0	100-300	2	
Purple loosestrife	6.0	300-600	1-2 (or 33% for wiper application)	
Other perennials	7.0-12.0	100-300	2	
Brush and Trees	3.0-6.0	100-300	1%-2%	Summer through early fall.
Birch, cherry, poplar, Western snowberry, willow				
Maple, raspberry, salmonberry, alder	6.0	100-300	2%	Late summer through early fall, fall is best.
turfgrass annual and perennial weeds	2.5-12.0	100-300	1%-2%	Use higher rates for perennials.
Roadside vegetation (1-2 metres wide)	(a) 0.75-1.0	25-150		Refer to tank mix section on product labels for specific weeds controlled. Refer to chart

Weeds	Ground application			Comments
	Boom application			
	Rate (L/ha)	Water volume (L/ha)	Hand held high volume application (% solution)	
along shoulder)	+ 1.25-2.5 L Dycleer 480 (b) 0.75-1.0 + 0.3 L Dycleer 480 + 1.2 L 2,4-D amine 500	50-150		on annual weed control for rates for specific weeds. For different 2,4-D formulations, adjust the rate accordingly. Do not apply to standing water.
Residual Control Annual and perennial weeds	2.5-12.0 + (b) 4.0-9.0 L Simadex Flowable	200-400		The Simazine part of this tank mix will provide season-long control of most broadleaf weeds and grasses, and may provide post emergent control of certain annual weeds. Do not apply to coarse, sandy or gravelly soil. One application per year. Use the most restrictive label directions for each product in the mix. For other simazine products registered for this use, use rates equivalent to 2.0-4.5 kg/ha

WEED CONTROL IN TREE, VINE AND BERRY CROPS

Crop	Rate L/ha	Pre- harvest interval (days)	Max. app. per year	Weed controlled	Comments
Apples, apricot, cherry (sweet/sour), peaches, pears, plums	2.25-12.0 directed spray	30	3	Annual and perennial weeds	Apply as directed spray with no more than 275 kPa pressure.
Apples, grapes	Tank Mix 2.25-12.0 + Simazine 2.0-4.5 kg/ha	-	1	Annual and perennial weeds	Will provide season-long pre- emergent control. Do not apply to coarse, sandy or gravelly soil. Use the more restrictive label direction for each product in the mix. Do not apply to orchards established less than 1 year or vineyards established less than 3 years. Simazine rate is equivalent to 2.25-5.0 kg/ha Princep Nine T or 4.0-9.0 kg/ha Simadex.
Grapes	2.25-12.0 directed spray	14	3	Annual and perennial Weeds	Remove all sucker growth from the spray zone before spraying, except for the Concord variety of grape. Suckering should be conducted within 2 weeks prior to application. Do not apply to vines which have been established less than 3 years.
Highbush (cultivated) blueberry	2.8-5.6 directed spray	30	1	Quack grass	Use as a directed spray with no more than 275 kPa pressure.
Lowbush blueberry	1% - 2% solution (spot treatment)	Apply in Non- Bearing Year Only	1	Wood brush	Apply as directed spray in mid-summer of the vegetative (non-bearing) year. See Agricultural and Cropland Use section for instructions on spot

Crop	Rate L/ha	Pre- harvest interval (days)	Max. app. per year	Weed controlled	Comments
					treatments.
Filberts, hazelnut (established plantations)	2.25-3.5 directed spray	14	-	Annual weeds	Use as a directed spray with no more than 275 kPa pressure.
Walnut, chestnut, Japanese chestnut	2.25-12.0 directed spray	-	2	Annual and perennial weeds	Apply late spring and fall, post harvest but prior to a killing frost. Apply in 200-300 L water as a directed spray using no more than 275 kPa pressure. Apply alternatively as a 2% wiper solution. See Application Equipment and Mixing Instructions section for instructions on wiper applications.
Cranberry	20% solution (1 L KnockOut Extra + 4 L water)	30	1	Annual and perennial weeds	Apply using wick or wiper applicators. See Application equipment and mixing instruction section for instructions on wiper applicators.
Strawberry	1%-2% solution (spot treatment) 33% solution, wiper application	30	1	Emerged perennial weeds	Apply when the weeds are at a susceptible growth stage. See Agricultural and Cropland Use section for instructions on spot treatments. See Application Equipment and Mixing Instructions section for instructions on wiper applications.
Sugar Beets	1%-2% solution (spot treatment)	Treated crop must not be harvested	1	Dodder species	Apply when Dodder is growing vigorously but before flowering. See Agricultural and Cropland Use section for instructions on spot treatments.

ANNUAL WEED CONTROL

Equipment	Weeds controlled	Growth stage	Rate L/ha	Water volume L/ha	Comments
Boom or boomless sprayers	Wild oats, green foxtail, volunteer barley, volunteer wheat, wild mustard, lady's-thumb, stinkweed	Weeds up to 8cm in height	0.75	50-100	For wild oats apply at 1-3 leaf stage. For heavy wild oat infestations use 1 L/ha. Add 350 mL of a surfactant registered for use such as Agral 90, AgSurf, Companion.
Boom or Boomless Sprayers	All annual grasses listed above plus foxtail barley* (suppression only) All annual broadleaf weeds listed above plus flixweed** and kochia**	Weeds 8 cm to 15 cm	1.0	50-100	*Apply before initiation of seed-head or senescence of the lower leaves. **Suppression only. Refer to higher rates of this table. Add 350 mL of a surfactant registered for use as listed above.
Boom or boomless sprayers	All annual grasses listed above plus downy brome, giant foxtail and Persian dandelion All annual broadleaf weeds listed above plus lamb's-quarters, redroot pigweed, hemp-nettle, flixweed, Russian thistle, volunteer flax, common ragweed*, Canada fleabane*, wild buckwheat**,	Weeds up to 15 cm in height	1.25-1.9	50-100	No additional surfactant required. DO NOT use these rates on plants greater than 8 cm in height. **For 3-4 leaf stage use 1.9 L/ha. ***For weeds 8 cm to 15 cm in height use 1.9 L/ha.

Equipment	Weeds controlled	Growth stage	Rate L/ha	Water volume L/ha	Comments
	narrow-leaved hawk's-beard***				
Boom or Boomless Sprayers	All annual grasses listed above plus crabgrass and annual bluegrass. All annual broadleaf weeds listed above plus kochia, prickly lettuce, shepherd's purse, annual sow-thistle and narrow-leaved vetch	Weeds up to 15 cm in height	2.25	50-100	
Boom or Boomless Sprayers	All annual grasses and broadleaf weeds listed above	Weeds over 15 cm in height	3.5	50-100	
Wipers and Wicks	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	This mixture is a 33% solution. Contact point for wiper or wick must be a least 5 cm above desirable

Equipment	Weeds controlled	Growth stage	Rate L/ha	Water volume L/ha	Comments
					vegetation. In severe weed infestations, reduce ground speed to ensure adequate control. See Application Equipment and mixing instruction section and mixing instruction sections for instructions on wiper and wick application.
Rollers	Annual weeds	Weeds to be at least 15 cm above desirable vegetation	0.5-1.0	10	This mixture is a 5%-10% solution. Roller speed 50-150 rpm. See Application Equipment and mixing instruction section for instructions on roller application.

PERENNIAL WEED CONTROL

Equipment	Weeds controlled	Growth stage	Rate L/ha	Water volume L/ha	Comments
Boom or boomless sprayers	Fall application (after harvest)	3-5 green leaves (approx. 20 cm height)	2.5	50-300	For season long control the following year. Do not till between harvest and application. Allow 5 days or more after application before tillage.
			2.5-7.0	50-300	Long Term Control. Reduced control may result if rhizomes have become dormant due to poor sod or land has not been tilled for several years. Treatment after a mild

Equipment	Weeds controlled	Growth stage	Rate L/ha	Water volume L/ha	Comments
					<p>frost is possible if 3-4 leaves are still green and actively growing but not after a heavy frost.</p> <p>Straw should be evenly spread to allow regrowth and adequate coverage.</p>
Boom or boomless sprayers	Canada thistle	<p>Bud stage or beyond</p> <p>Rosette stage (summer fallow)</p>	<p>4.75-7.0</p> <p>2.5</p>	<p>100-300</p> <p>50-100</p>	<p>Allow 5 days after application before tillage.</p> <p>Heavy frost prior to application may decrease control.</p> <p>Ensure proper growth stage by performing last summer fallow tillage between July 5 and August 1st. Allow regrowth for a minimum of 5 weeks to reach rosette stage and a minimum of 15 cm in diameter.</p> <p>Allow 10 days after application before tillage.</p> <p>Treatment after mild frost is possible if leaves are still green and actively growing but not after heavy damaging frost.</p>
Boom or boomless sprayers	Other perennial weeds	Early heading or early bud stage (see Weed Controlled)	7.0-12.0	100-300	<p>Use higher rate for weeds beyond 8 cm in height or in heavy weed infestation.</p> <p>Allow 7 days after application before</p>

Equipment	Weeds controlled	Growth stage	Rate L/ha	Water volume L/ha	Comments
		section)			tillage. KnockOut Extra rate is equivalent to 70-120 mL/100 m ² .
Boom or boomless sprayers	Field bindweed	Full bloom or beyond	7.0-12.0	100-300	Allow 7 days or more after application before tillage.
Boom or boomless sprayers	Common milkweed	Bud to full bloom for most shoots	12.0	100-300	Spot treatment rate is 120 mL per 5 L water/100 m ² and spray to wet ...not runoff. Reduced results may occur if sprayed after full bloom. Repeat treatment may be required. Allow 7 days or more after application before tillage.
Boom or boomless sprayers	Quack grass spring application (no fall tillage)	3 to 4 green leaves (approx. 20 cm high)	2.5	50-300	Season long control. At higher water volumes use approved surfactant at 0.5% v/v (0.5 L per 100 L of water). Allow 3 days after application before tillage.
Boom or boomless sprayers	Quack grass spring application (fall-tilled land)	4 to 5 green leaves (approx 20 cm high)	2.5	50-100	Season long control. Apply in spring prior to seeding. Growth stage usually reached 1 to 4 weeks later on land that has been fall-tilled. Reduced control may result on land tilled deeper than 15 cm.
Boom or boomless	Woody brush and trees	Actively growing	3.0-6.0	100-300	Use higher rate for maple, alder, rubus

Equipment	Weeds controlled	Growth stage	Rate L/ha	Water volume L/ha	Comments
sprayers		from June through August			species and willow*. Spray to wet.
High volume or knapsack	Woody brush and trees	Actively growing from June through August	1%-2%	100	This mixture is 1% to 2% solution. Use higher rate for maple, alder, rubus species and willows*. Spray to wet. See application and mixing section for instructions on high volume or knapsack applications
Wipers and wicks	Perennial weeds	Weeds to be at least 15 cm above desirable vegetation	1	2	See Application Equipment and Mixing Instructions section for instructions on Wiper and Wick Applications.
Rollers	Annual and perennial weeds	Weeds to be at least 15 cm above desirable vegetation	0.5-1.0	10	THIS MIXTURE IS A 5-10% SOLUTION. See Application Equipment and Mixing Instructions section for instructions on Roller Application. This treatment will only suppress perennial weeds contacted. Roller speed 50-150 rpm.
Tree Injection	Trees*	During periods of active growth and full leaf expansion except during periods of heavy sap	1 mL per 10 cm of trunk diameter at chest height	None	Suitable equipment must be used to penetrate to living tissue. Space applications evenly around the circumference of the trunk below major branches.

Equipment	Weeds controlled	Growth stage	Rate L/ha	Water volume L/ha	Comments
		flow			<p>Control of trees with trunk diameters greater than 20 cm may not be acceptable.</p> <p>See Application and Mixing Instruction section for instructions on tree injection applications.</p>

*Suppression only for willow.

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