

Herbicide Abstracts

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ABSOLUTE (*imazamox plus imazethapyr plus clopyralid*)

For Use in the Peace River Region Only

HERBICIDE GROUP 2,4

Pre-packaged Mix

Pre-packaged mix of Odyssey and Lontrel herbicides for control of a broad-spectrum of broadleaved and grassy weeds in Clearfield canola only. Follow label directions regarding tank mixes, rates, weeds controlled, timing, mixing instructions, etc. Also refer to write-ups on both Odyssey and Lontrel in this Guide for other detailed information.

ACCENT (*nicosulfuron*)

HERBICIDE GROUP - 2

1. Formulation

Dry flowable granular 75%

2. Registered Mixes

Banvel II, Pardner

Accent herbicide must be applied with a recommended non-ionic surfactant such as Citowett Plus, Agral 90 or Ag-Surf at a rate of 0.2% v/v.

3. Crops

Field corn

4. Weeds Controlled

barnyardgrass, fall panicum, green foxtail, old witchgrass, quackgrass, wild oats

5. Weeds Suppressed

yellow foxtail

6. When Used

Crops

Corn: 1 - 8 leaf stage (6 visible collars). The coleoptile (short, blunt leaf) is counted as the first leaf. **Do not** apply to corn that has been stressed

due to abnormal weather, frost, prior herbicide use or insect or disease injury.

Weeds

Wild oats: 3 - 6 leaf stage. Barnyardgrass, fall panicum, green foxtail, old witchgrass, yellow foxtail: 1 - 6 leaves (maximum 2 tillers).

Quackgrass: When the majority of quackgrass shoots are actively growing and in the 3 to 6 leaf stage (10 to 20 cm in height - leaf extended).

7. Application Considerations

Use Of Insecticides

For maximum crop safety, Accent should be applied only to corn that HAS NOT been treated with a highly systemic organophosphorus soil insecticide. Application of Accent to corn previously treated with Dyfonate insecticide may cause some temporary yellowing of corn leaves, and/or temporary stunting. Application of Accent to corn previously treated with Force (pyrethroid) or Furdan (carbamate) insecticides will allow maximum crop safety. **Do not** tank mix any organophosphorus insecticide.

Do not apply a foliar organophosphorus insecticide within 7 days before or after applying Accent.

8. Environmental Considerations

Effects of Rainfall

Rainfall within 2 - 4 hours after application may reduce weed control.

Movement in Soil

Accent has low to intermediate soil mobility. The most rapid degradation in soil occurs under conditions of acidic pH and higher temperatures.

9. Grazing And Cropping Restrictions

Do not graze treated crops or cut for hay.

Re-cropping

Replanting interval for winter wheat - 4 months. Replanting interval for field corn, canola, red clover, alfalfa - 10 months. For other crops, a field bioassay is recommended before planting. A successful field bioassay means growing to maturity a test strip of the crop(s) intended for production the following year.

ACHIEVE LIQUID GOLD (*tralkoxydim plus bromoxynil plus MCPA*)

HERBICIDE GROUP - 1,6,4

Achieve Liquid Gold is a co-pack containing Achieve Liquid: tralkoxydim: (400g/L) suspension concentrate, Buctril M: (280g/L bromoxynil plus 280 g/L MCPA) emulsifiable concentrate and Turbocharge adjuvant for use in barley (all 2 and 6 row varieties), wheat (all varieties) and rye.

This co-pack controls annual grassy and broadleaved weeds including: American nightshade, annual smartweed, ball mustard, barnyardgrass, bluebur, cocklebur, common groundsel, common ragweed, cow cockle, flixweed, green foxtail, kochia (before 5 cm high), lady's-thumb, lamb's-quarters, night-flowering catchfly, Persian darnel, redroot pigweed, Russian thistle (before 5 cm high), scentless chamomile (spring annuals only), shepherd's-purse, stinkweed, tartary buckwheat, volunteer buckwheat, volunteer oats, volunteer sunflower, wild buckwheat, wild mustard, wild oats, wormseed mustard, yellow foxtail.

Refer to labels for Achieve Liquid and Buctril M for specific use instructions including timing, environmental considerations, grazing and cropping restrictions.

ACHIEVE LIQUID (*tralkoxydim*)

HERBICIDE GROUP - 1

1. Formulation

liquid (400 g/L)

2. Registered Mixes

Attain, Buctril M, Buctril M plus MCPA Ester, Curtail M, 2,4-D Ester, Dichlorprop-D, Estaprop, Lontrel, Lontrel plus MCPA Ester, Mextrol, MCPA ester, Pardner, Prestige, Thumper, Trophy, Turboprop

Tanks mixes of Achieve Liquid with insecticides:

Achieve Liquid Herbicide alone or in combination with Buctril M products or Pardner can be tank mixed with Matador 120EC or Decis Flowable insecticide. Always add Matador 120EC or Decis Flowable to the spray tank after the herbicide but before adding adjuvant.

Always add Turbocharge or Turbocharge EST Adjuvant to the spray solution.

Mix restrictions: Not compatible with amine formulations of 2,4-D or MCPA.

3. Crops

spring wheat, durum wheat, winter wheat, barley, triticale, spring and winter rye and the following forage grasses grown for **seed only**: seedling and established intermediate and crested wheatgrass, creeping red fescue, meadow and smooth brome grass either underseeded to cereals or grown alone and for establishment of northern wheatgrass, western wheatgrass and slender wheatgrass.

Cereal crops may be underseeded to alfalfa, birdsfoot trefoil, sainfoin or clover.

4. Weeds Controlled

barnyardgrass, green foxtail, Persian darnel, volunteer oats, wild oats, yellow foxtail.

5. Weeds Suppressed

none.

6. When Used

Crops

cereals, forage grasses for seed production and legumes (listed above): No restrictions on crop staging.

Weeds

wild oats: 1 to 6 leaf stage of growth (maximum of two tillers). **green and yellow foxtail:** 1-5 leaf stage of growth (up to emergence of second tiller). **Persian darnel:** 1-4 true leaf stage of growth. Optimum weed control and crop yield response occurs when annual grasses are controlled before tillering.

Do not apply the tank mix with 2,4-D ester or Estaprop before the 4 leaf stage of the crop.

7. Application Considerations

Tilled cereal crops may incur injury if applications are made within 48 hours of freezing temperatures. Non-tillering cereal crops which are exposed to temperatures of 4°C or less up to 48 hours before or after application may incur injury. Tank-mixing Achieve Liquid with a broadleaf weed herbicide under adverse conditions may increase severity of

crop injury. Crops under stress from foliar diseases or low fertility are more susceptible to injury.

8. Environmental Considerations

When applied by ground, do not apply within 15 m of non-crop areas. When applied by air, do not apply within 50 m of non-crop areas. Non-crop areas include, fish-bearing waters, wetlands (potholes, sloughs etc.) and wildlife habitat (hedgerows, rights-of-way etc.). Avoid drift onto other crops and non-target areas. For tank-mixes, consult the label(s) of the tank mix partner(s) and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

Effects of Rainfall

No effect 1 hour after application.

Movement in Soil

No soil movement. This product will not leach in the soil.

9. Grazing and Cropping Restrictions

Immature cereal crops may be grazed or cut for hay 16 days after treatment. Grain may be harvested 60 days after treatment. Mature straw may be fed to livestock. **Do not** feed or graze underseeded forage crops in the year of treatment, as sufficient data are not available to support this use.

Re-cropping

Do not replant treated areas to tame oats or corn for at least 4 weeks after application.

ADRENALIN SC (*imazamox plus 2,4-D ester*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 2,4

1. Formulation

suspension concentrate - imazamox (20 g/L) plus 2,4-D ester (500g/L).

2. Registered Mixes

None. Must be applied with a non-ionic surfactant such as Agral 90, Agsurf or Surf 92).

3. Crops

Clearfield wheat (imazamox tolerant varieties only).

4. Weeds Controlled

Grassy weeds

barnyardgrass, green and yellow foxtail, Persian dandelion, volunteer barley, volunteer wheat (non-imazamox tolerant), wild oats.

Broadleaved weeds

annual sowthistle, annual smartweed, bluebur, cocklebur, cow cockle, daisy fleabane, false flax, flixweed, goat's-beard, kochia, lady's-thumb, lamb's-quarters, mustards (except dog and tansy), narrow-leaved hawk's-beard, plantain, prickly lettuce, ragweed, redroot pigweed, Russian pigweed, Russian thistle, shepherd's-purse, stinging nettle, stinkweed, sweetclover, thyme-leaved spurge, volunteer canola (including all herbicide tolerant varieties), wild buckwheat, wild radish, wild sunflower.

5. Weeds Suppressed

Grassy weeds

Japanese brome grass

Broadleaved weeds

biennial wormwood, blue lettuce, bull thistle, burdock, buttercup, Canada thistle, chickweed, cleavers, common groundsel, curled dock (young), dandelion, dog mustard, field bindweed, gumweed, hawkweed, heal-all, hedge bindweed, hoary cress, horsetail, knotweed, leafy spurge, oak-leaved goosefoot, peppergrass, perennial sowthistle, pineappleweed, prostrate pigweed, purslane, Russian knapweed, sheep sorrel, tansy mustard, tartary buckwheat, tumble pigweed, velvetleaf.

6. When Used

Crop

Apply when Clearfield wheat is in the extended 3 leaf to the 6-leaf stage (prior to flag leaf emergence).

Weeds

Apply to broadleaved weeds from the cotyledon up to the 4-leaf stage. Apply to grassy weeds from the 1-4 true leaf stage up until early tillering.

7. Application Considerations

AVOID SPRAYER OVERLAP as severe crop injury may occur.

8. Environmental Considerations

Adrenalin SC contains a petroleum distillate that is toxic to aquatic organisms. A buffer zone of 11 metres is 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, pastures, rangelands, and shrublands) and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, and wetlands). Potential for contamination of aquatic areas as a result of runoff may be reduced by inclusion of a vegetative strip between the treated area and the edge of the water body.

Effects of Rainfall

A rain-free period of 3 hours is recommended.

Movement in Soil

No appreciable leaching.

9. Grazing And Cropping Restrictions

Do not graze the treated crop within 14 days of application or cut for hay within 42 days of application. Wheat grain and straw can be harvested 79 days after treatment.

Re-cropping

The following crops may be grown safely the year following an application: canary seed, field peas, imazethapyr tolerant canola (CLEARFIELD canola), non-imazethapyr tolerant canola (non-CLEARFIELD canola), lentils, spring wheat, durum wheat, spring barley, oats, flax. Conduct a field bioassay (a test strip grown to maturity) the year before growing any crop other than those listed.

ADVANCE, BONANZA, RIVAL, TREFLAN (*trifluralin*)

(canola, special crops)

HERBICIDE GROUP - 3

1. Formulation

Granular (10%)

Advance, Bonanza, Rival Superflow (for use in Peace River Region only).

Emulsifiable concentrate

Bonanza (400 g/L and 480 g/L), Rival (500 g/L), Treflan (480 g/L).

2. Registered Mixes

Granular formulations: none. Emulsifiable concentrate formulations: liquid nitrogen fertilizer (28-0-0); Sencor for triazine tolerant canola.

3. Crops

Granular formulations

Advance, Bonanza, Rival: canola (including triazine tolerant varieties), field peas, alfalfa with flax or canola cover crops (Advance, Bonanza only).

Emulsifiable concentrate formulations

Bonanza 400 and 480, Treflan 480: canola (including triazine tolerant varieties; field peas; sainfoin; sweetclover*; alfalfa**); the following seedling forage legumes (forage and seed production)***: alsike clover, red clover, bird's-foot trefoil, cicer milkvetch.

Rival 500: canola (including triazine tolerant varieties), field peas, sainfoin, sweetclover*.

* spring application only.

** excluding the Peace River Region

*** Peace River Region only

4. Weeds Controlled

Grassy weeds

annual bluegrass, barnyardgrass, cheatgrass, crabgrass, downy brome, green foxtail, Persian darnel, yellow foxtail.

Broadleaved weeds

chickweed, cow cockle, knotweed, lamb's-quarters, purslane, redroot pigweed, wild buckwheat.

5. Weeds Suppressed

wild oats. No control of mustard family weeds.

6. When Used

Product labels differ in registered crops and use instructions. Refer to the specific label for details.

*Peace River Region***Granular formulations**

Do not apply granular formulations in the spring. **Do not** use on soils subject to erosion. Fall application to summerfallow under certain conditions such as low trash cover or light textured soils may predispose the field to wind and/or water erosion and is not recommended.

Summer application: (between June 1 and September 1): summerfallow for land to be planted to canola (including triazine tolerant varieties) or flax the following year.

Fall application: alfalfa establishment (excluding Rival); canola (including triazine tolerant varieties); field peas.

Emulsifiable concentrate formulations

Spring application: legumes for forage and seed* (alsike clover, red clover, cicer milkvetch, bird's-foot trefoil); field peas; sainfoin; sweetclover; canola (including triazine tolerant varieties).

Summer application: (between June 1 and September 1): summerfallow for land to be planted to canola (including triazine tolerant varieties) or flax the following year.

Fall application: canola (including triazine tolerant varieties); field peas.

* Bonanza and Treflan only

*British Columbia (excluding the Peace River Region)***Granular formulations**

Not recommended.

Emulsifiable concentrate formulations

Apply to all registered crops, including direct seeded alfalfa, and incorporate in the spring (prior to weed emergence) from 3 weeks before planting up to the time of planting crop.

7. Application Considerations*Incorporation*

The first incorporation of trifluralin may be delayed up to 24 hours after application and should be done in the same direction as application. For most effective weed control, it is recommended that the second incorporation (at right angles to the first) of Advance 10 G should be delayed for a minimum of 3 days, and a minimum of 5 days for Bonanza 10 G or Rival 10 G. This allows time for greater release of trifluralin onto soil particles and assures more uniform distribution in soils. Emulsifiable concentrate formulations should be incorporated within 24 hours of application. For summer applications subsequent incorporations may be done whenever resistant weed growth occurs for the remainder of the fallow season. For fall applications, it is preferred if both incorporations are done in the fall but the second may be done in the spring at the time of seedbed preparation.

Do not apply to soils that contain more than 15% organic matter such as peat or muck soils.

Do not apply to soils with less than 2% organic matter. Application to eroded knolls or grey-wooded soils with highly variable texture or organic matter may result in reduced crop stand, delayed development or reduced yields in either the treated crop or rotational crop.

Do not apply to wet soils that are subject to excessive flooding.

Do not apply to soils that are extremely lumpy, cloddy or in poor working condition.

If manure has been applied to the field, ensure that it is thoroughly mixed into the soil with at least two tillage operations prior to application.

8. Environmental Considerations

Trifluralin contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. Direct contamination of any body of water with this product may kill fish. **Do not** contaminate any body of water by direct application, cleaning of equipment or disposal of wastes.

Effect of Rainfall

Rainfall does not affect trifluralin activity once incorporated into the soil.

Movement In Soil

Not leached in the soil.

9. Grazing And Cropping Restrictions

Do not graze the treated immature crops or cut for hay; there are not sufficient data available to support such use.

Re-cropping

Highly sensitive crops such as oats, sugarbeets and small seeded annual grasses (timothy, canaryseed, and creeping red fescue) should not be grown in rotation the year following application. **Do not** seed wheat as a rotational crop on land if trifluralin has been used at an oilseed/special crop/barley rate for two consecutive crops.

NOTE: Seedling disease, cold weather, deep planting, excessive moisture, high salt concentration, soil compaction or drought may weaken seedlings and increase the risk of injury, which may result in delayed crop development or reduced yields.

To reduce the possibility of injury to rotational crops, use Certified seed and seed shallow into a warm moist seedbed using recommended agronomic practices and seeding depths. As an additional safety precaution seeding rate may be increased slightly. Avoid deep seeding, loose seedbeds and seeding into cold soils.

Do not direct seed (zero till) a rotational crop into standing stubble on land that has been treated with trifluralin or Edge for the previous crop when initiating a direct seeding program. Cultivation prior to seeding a rotational crop is strongly recommended to help aerate the soil and promote seedbed conditions that will enhance seed germination.

ADVANCE, BONANZA, RIVAL, TREFLAN (*trifluralin*)

(cereals)

For Use in the Peace River Region Only

HERBICIDE GROUP - 3

1. Formulation

Granular (10%)

Advance, Bonanza, Rival Superflow.

Emulsifiable concentrate

Bonanza (400 g/L and 480 g/L), Rival (500 g/L), Treflan (480 g/L).

2. Registered Mixes

Granular formulations

none.

Emulsifiable concentrate formulations

liquid nitrogen fertilizer (28-0-0); Avadex BW.

3. Crops

barley, spring wheat, durum wheat.

Underseeding not recommended.

4. Weeds Controlled

Granular formulations (fall application only)

green foxtail, yellow foxtail in barley and wheat; lamb's-quarters in the crop year of wheat.

Emulsifiable concentrate formulations

green and yellow foxtail.

5. Weeds Suppressed

Emulsifiable concentrate formulations

wild oats when mixed with Avadex BW (emulsifiable concentrate formulations).

6. When Used

Granular formulations

apply to barley, spring wheat and durum wheat in the Fall only from September 1 until freeze-up. In a summerfallow-wheat rotation apply from May through July of the fallow year.

CAUTION: Do not apply granular formulations on stubble in the fall for barley or wheat when the crop harvested in the current calendar year was treated with products containing trifluralin or Edge (ethalfluralin) herbicides. This includes applications made in the previous summer or fall.

Emulsifiable concentrate formulations

Apply in the spring immediately after seeding but prior to crop emergence.

7. Application Considerations

Advance, Bonanza, Rival: For barley, do not apply Advance 10G Herbicide on grey-wooded soils or other soils containing less than 2% organic matter or on black/deep black soils containing more than 6% organic matter.

Incorporation

Emulsifiable concentrate formulations

Apply as soon as possible after seeding and before crop emerges to a soil surface which is free of trash or was fallowed the previous year. **Do not** apply or incorporate when the soil is crusted, lumpy or too wet for good mixing action. Application and the first incorporation should be done in the same operation if possible. Incorporate to a shallow depth (2 to 4 cm) with diamond harrows or tyne harrows in two different directions at a minimum speed of 9 km/hr.

Incorporation must be above the depth of seed placement

Both incorporations must be done within 24 hours of application. Uneven incorporation may result in some wild millet escapes in the bottom of furrows left by the last row of the harrows if the depth of the treated layer in these troughs is not sufficient to prevent emergence of green foxtail. To obtain a more uniform layer of treated soil, operate tyne harrows inclined at least 45 degrees backwards and harrow at a speed which minimizes the amount of soil ridging by the harrows.

Granular formulations

Apply in the Fall and make the first incorporation, in the same direction as application, within 24 hours after application. For most effective weed control, it is recommended that the second incorporation (at right angles to the first) of Advance 10 G should be delayed for a minimum of 3 days, and a minimum of 5 days for Bonanza 10 G or Rival 10 G. This allows time for greater release of trifluralin onto soil particles and assures more uniform distribution in soils. For Spring/summer application in the fallow year of the summerfallow-wheat rotation apply and incorporate to 8 cm within 24 hours of application. Delay the second incorporation for a minimum of 5 days or until new weed growth requires cultivation/discing.

Do not apply to soils that contain more than 15% organic matter such as peat or muck soils.

Do not apply to soils with less than 2% organic matter. Application to eroded knolls or grey-wooded soils with highly variable texture or organic matter may result in reduced crop stand, delayed development or reduced yields in either the treated crop or rotational crop.

Do not apply to wet soils that are subject to excessive flooding.

Do not apply to soils that are extremely lumpy, cloddy or in poor working condition.

If manure has been applied to the field, ensure that it is thoroughly mixed into the soil with at least two tillage operations prior to application.

8. Environmental Considerations

Trifluralin contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. Direct contamination of any body of water with this product may kill fish. **Do not** contaminate any body of water by direct application, cleaning of equipment or disposal of wastes.

Effect of Rainfall

Rainfall does not affect trifluralin activity once incorporated into the soil.

Movement In Soil

Not leached in the soil.

9. Grazing And Cropping Restrictions

Do not graze the treated immature crops or cut for hay; there are not sufficient data available to support such use.

Re-cropping

Highly sensitive crops such as oats, sugarbeets and small seeded annual grasses (timothy, canaryseed, and creeping red fescue) should not be grown in rotation the year following application. **Do not** seed wheat as a rotational crop on land if trifluralin has been used at an oilseed/special crop/barley rate for two consecutive crops.

NOTE: Seedling disease, cold weather, deep planting, excessive moisture, high salt concentration, soil compaction or drought may weaken seedlings and increase the risk of injury, which may result in delayed crop development or reduced yields.

To reduce the possibility of injury to rotational crops, use Certified seed and seed shallow into a warm moist seedbed using recommended agronomic practices and seeding depths. As an additional safety precaution seeding rate may be increased slightly. **Avoid deep seeding, loose seedbeds and seeding into cold soils.**

Do not direct seed (zero till) a rotational crop into standing stubble on land that has been treated with trifluralin or Edge for the previous crop when initiating a direct seeding program. Cultivation prior to seeding a rotational crop is strongly recommended to help aerate the soil and promote seedbed conditions that will enhance seed germination.

ALLY (*metsulfuron-methyl*)

For use in the Peace River Region Only

HERBICIDE GROUP - 2

1. Formulations

Ally Toss-N-Go (Dry flowable - 60%) in water soluble bags

2. Registered Mixes

2,4-D amine and ester, MCPA amine and ester, Avenge 200-C, Avenge 200-C + MCPA ester, Horizon + Score adjuvant, Puma, Assure II.

Surfactants recommended for use with Ally Toss-N-Go include Ag-surf, Agral 90, Citowett Plus, Companion and Super Spreader Sticker. Not all tank mixes require use of a surfactant.

Refer to tank mix partner label to determine crop use and for instructions on crop staging and mixing.

3. Crops

wheat (spring and durum), barley, established creeping red fescue, orchardgrass, intermediate wheatgrass and crested wheatgrass for seed and forage. **Do not** use when underseeded to forage crops not listed. **Apply only to soils of pH 7.9 or lower.**

4. Weeds Controlled

Ally at 7.5 grams/ha plus surfactant controls

annual sow-thistle*, ball mustard, bluebur, Canada thistle*, common groundsel, chickweed, corn spurry, cow cockle, flixweed, green smartweed, hemp-nettle, kochia, lady's-thumb, narrow-leaved hawk's-beard, perennial sowthistle*, prostrate pigweed, redroot pigweed, Russian thistle*, scentless chamomile, shepherd's-purse, stinkweed, stork's-bill, tartary buckwheat, toadflax*, volunteer canola (excluding Clearfield varieties), wild buckwheat*, wild mustard.

Ally at 5.0 g/ha plus 2,4-D amine or ester plus surfactant controls

annual sow-thistle*, annual sunflower, ball mustard, Canada thistle*, cow cockle, chickweed, flixweed, green smartweed, hemp-nettle, kochia, lamb's-quarters, narrow-leaved hawk's-beard (spring seedlings), perennial sowthistle*, plantain, prickly lettuce, redroot pigweed, Russian pigweed, Russian thistle, shepherd's-purse, stinkweed, sweetclover, toadflax*, volunteer canola (including Clearfield varieties), wild buckwheat*, wild mustard, wormseed mustard.

Ally at 7.5 g/ha plus 2,4-D amine or ester plus surfactant controls above weeds plus

bluebur, common groundsel, corn spurry, lady's-thumb, prostrate pigweed, scentless chamomile, stork's-bill, tartary buckwheat, toadflax*.

Ally at 5.0 g/ha plus MCPA amine or ester plus surfactant controls

annual sow-thistle*, annual sunflower, ball mustard, Canada thistle*, cow cockle, chickweed, flixweed, green smartweed, hemp-nettle, kochia, lamb's-quarters, perennial sowthistle*, plantain, prickly lettuce, redroot

pigweed, Russian pigweed, Russian thistle, shepherd's-purse, stinkweed, sweetclover, toadflax*, volunteer canola (including Clearfield varieties), wild buckwheat*, wild mustard, wormseed mustard.

Ally at 7.5 g/ha plus MCPA amine or ester plus surfactant controls above weeds plus

bluebur, common groundsel, corn spurry, lady's-thumb, prostrate pigweed, scentless chamomile, stork's-bill, tartary buckwheat, toadflax*.

5. Weeds Suppressed

Weeds marked as * under 4. **Weeds Controlled** above.

6. When Used

Crop

Apply when crops are in the 2 leaf to flag leaf (shot blade) stage of growth. When tank mixing to control a broader weed spectrum, refer to the Ally Toss-N-Go and the tank mix partner labels for specific crop spacing information.

Weeds

For best results apply to the first main flush of young, actively growing weeds in the 2 to 4 leaf stage and before crop canopy is dense enough to prevent thorough weed coverage.

7. Application Considerations

Prior to using Ally careful consideration should be given to crop rotation plans as many crops are sensitive to low concentrations of the herbicide in the soil.

Do not use on soils above pH 7.9

Do not use on highly variable soils that have large gravelly or sandy areas, eroded knolls, or calcium deposits.

Do not use more than 7.5 grams per hectare per year.

Do not apply to irrigated land where tail water will be used to irrigate other cropland.

Do not apply within 15 meters of a body of water.

Do not apply to frozen ground where surface runoff may occur.

Do not apply to a crop that is stressed by severe weather conditions, drought, low fertility, water saturated soil, disease or insect damage as crop injury may result.

Do not apply to wheat or barley undersown with legumes or grasses as injury to the forage may result.

Extreme care must be taken to avoid drift to non-target agricultural lands and desirable plants.

8. Environmental Considerations

Overspray or drift to wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders and woodlots must be avoided. Leave a 15 metre zone between the last spray swath and the edge of these habitats.

Effects of Rainfall

Heavy rainfall within 2 hours of application may reduce weed control. Heavy rainfall immediately after application may cause temporary lightening of crop.

Movement in Soil

Movement is restricted by fine textured soils, soil organic matter and neutral to acidic soil conditions.

9. Grazing and Cropping Restrictions

No grazing restrictions are specified on the label.

Re-cropping

Rotation options are determined by soil pH (do not use on soils greater than pH 7.9), crop to be planted and a minimum interval. Refer to the Ally label for specific instructions on performing a soil bioassay to confirm that residues are not present.

Crops for rotation	Soil pH	Minimum Cropping Intervals (months)*	
		Black/Grey Wooded Soils	Brown/Dark Brown Soils
Oats	6.9 or lower	10	10
Oats	7.0 to 7.9	10	22
Barley, wheat, durum	7.9 or lower	10	10
Fescue	7.5 or lower	10	Field bioassay
Canary seed	6.9 or lower	48	48
Canary seed	7.0 to 7.9	48	48
Canola, flax	6.9 or lower	10	22
Canola	7.0 to 7.9	22	34
Flax	7.0 to 7.9	34	34
Lentils	6.9 or lower	34	34
Lentils	7.0 to 7.9	48	48
Yellow mustard	6.9 or lower	48	48
Yellow mustard	7.0 to 7.9	48	48
Alfalfa, red clover, peas	7.5 or lower	22	Field bioassay
All other crops	7.9 or lower	Field bioassay	Field bioassay

*If land has been treated with Ally and Assert the same year or in successive years, seed only wheat, excluding durum, until a field bioassay demonstrates that other crops can be seeded. When recropping to broadleaf crops following an Ally application, extend the rotational interval by 1 year if rainfall was less than 130 mm in the Brown and Dark Brown Soil Zones or 250 mm in the Black and Grey Wooded Soil Zones in any year within the stated interval prior to planting.

From: Alberta Agriculture and Food Herbicide Selector at <http://www.agric.gov.ab.ca/app23/herbssel>

ALTITUDE FX (AC 299,263 120 AS plus fluroxypyr plus MCPA ester 600)

**For Use in the Peace River Region
Only**

HERBICIDE GROUP - 2,4

1. Formulation

AC 299,263 120 AS: imazamox solution (120 g/L)

Starane (fluroxypyr): emulsifiable concentrate (180 g/L)

MCPA ester: emulsifiable concentrate (600 g/L)

2. Registered Mixes

None.

Use with a non-ionic surfactant, such as Agral 90, Ag-Surf or Surf 92.

3. Crops

Clearfield wheat only

4. Weeds Controlled

Grassy weeds

green foxtail, Persian darnel, volunteer barley, volunteer durum wheat and spring wheat (non-Clearfield varieties), volunteer oats, wild oats, yellow foxtail.

Broadleaved weeds

annual sunflower, chickweed, cleavers, cocklebur, common burdock, cow cockle, flixweed, hemp-nettle, kochia (including Group 2 resistant), lamb's-quarters, mustards (except dog and tansy), prickly lettuce, ragweed, redroot pigweed, shepherd's-purse, stinkweed, vetch, volunteer flax, wild buckwheat, wild radish.

5. Weeds Suppressed

Japanese bromegrass, green smartweed, stork's-bill (1 to 8 leaf stage).

6. When Used

Crop

Apply to Clearfield wheat from the 3 leaf stage up to and including the 6 leaf stage

Grassy Weeds

Apply from the 1 - 6 leaf stage (maximum of two tillers).

Broadleaved Weeds

Apply from the cotyledon to 4 leaf stage. Apply to cleavers with 1 to 4 whorls; to hemp-nettle in the 2 to 6 leaf stage.

7. Application Considerations

Do not apply by air and do not apply more than once per year. Weed control in cool, dry weather may be severely reduced. Read warnings listed under ENVIRONMENTAL CONSIDERATIONS.

8. Environmental Considerations

Altitude FX is moderately to highly toxic to aquatic organisms. A buffer zone of 15 metre is 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, pastures, rangelands and shrublands). For field sprayers, buffer zones can be reduced by 70% when using shrouds or 30% when using cones.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g., soils that are compacted or fine textured such as clay). Avoid application when heavy rain is in the forecast. Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the waterbody.

Effects of Rainfall

Do not apply if rainfall is expected within 3 hours.

Movement in Soil

Imazamox does not leach appreciably. MCPA and fluroxypyr can be leached from porous soils and do not bind well to sand, silt or clay. Follow precautions near wells and sensitive terrestrial and aquatic habitats.

9. Grazing And Cropping Restrictions

Do not graze the treated crop within 14 days of application or cut for hay within 42 days of application.

Wheat grain and straw can be harvested 79 days after treatment.

Re-cropping

The following crops may be grown safely the year following an application: field peas, canaryseed, imazethapyr tolerant canola (e.g. canola varieties with the Clearfield trait), non-imazethapyr tolerant canola (non-Clearfield canola), lentils, spring wheat, durum wheat, spring barley, oats, flax. There are insufficient data for other follow crops. Conduct a field bioassay (a test strip grown to maturity) the year before growing any crop other than those listed.

AMITROL 240 (*amitrole*)

HERBICIDE GROUP - 11

1. Formulations

Liquid (231 g/L)

2. Registered Mixes

Roundup, Pursuit.

3. Crops

Pre-plant

corn, barley, wheat, canola, field peas, alfalfa renovation

Post-harvest

grain, field peas, after final cutting of alfalfa and clover

Perennial weed control in pasture, shelterbelts and non-cropped land (roadsides, fencelines, ditchbanks)

4. Weeds Controlled

Canada thistle, perennial sowthistle, quackgrass, toadflax, milkweed, hoary cress, leafy spurge, horsetail cattail, poison ivy, poison oak, dandelion and most annual weeds.

5. Weeds Suppressed

None.

6. When Used

Crops

Corn and alfalfa renovation - apply before weeds are 10 cm tall and 10 to 14 days prior to seeding crop.

Wheat, barley, canola, field peas - apply before weeds are 10 cm tall and 0 to 1 day before seeding crop.

Post-harvest in cereals, field peas, after final cutting of alfalfa and clover - after Canada thistle and perennial sow-thistle re-growth is 10 to 15 cm tall but before heavy frost (generally not after October 1).

Weeds

Canada thistle - when most thistles are in the early bud to bloom stage; Quackgrass - when growth is 10-15 cm tall; Dandelion - when weeds are young and actively growing; Toadflax - during advanced rosette to pre-bud stage; Milkweed - in early summer when majority of shoots have emerged; Hoary Cress - during advanced rosette and bud stages; Leafy Spurge - between the advanced flowering and early seed development stage; Horsetail - when horsetail is growing vigorously, usually when 10-15 cm high; Cattails - after catkins are fully formed and up to frost; Poison Oak, Poison Ivy - anytime after foliage is fully developed in spring until plants begin to turn brown in the fall.

7. Application Considerations

Amitrol 240 is most effective when sprayed on foliage of actively growing plants. Good coverage is essential for complete control. For good control of annual weeds spray early, usually before weeds are 10 cm in height. Apply in at least 50 litres of water per hectare unless otherwise stated. Good coverage of the weed is essential for good control. Apply in the early morning or evening when the humidity is higher, for best results. Avoid application when

the daytime temperature exceeds 25 C and when air conditions are very dry. Avoid using higher rates pre-plant in crop applications on very light soil with low organic matter. Crop damage may occur, particularly on sandy knolls.

Do not spray or allow spray drift to contaminate crops in adjacent cropland as no chemical residue in crops is permitted.

8. Environmental Considerations

Do not APPLY BY AIR. **Do not** re-enter treated areas within 12 hours of application.

Effects of Rainfall

Heavy rains within 2 hours of application may reduce effectiveness

Movement in Soil

Amitrol is inactive in most soils.

9. Grazing And Cropping Restrictions

Do not graze treated crops or weeds or cut for hay: Sufficient data not available to support such use.

Re-cropping

Corn, soybeans, white beans - Wait 10-14 days following a pre-plant spray, then plant crop under no-till or conventional till. **Do not** apply within 8 months of planting crops other than corn, wheat, barley, canola, field peas, soybeans, white beans.

APPROVE/THUMPER (bromoxynil + 2,4-D)

HERBICIDE GROUP - 4,6

1. Formulation

Approve - bromoxynil (225 g/L) plus 2,4-D ester (225 g/L)

Thumper - bromoxynil (280 g/L) plus 2,4-D ester (280 g/L)

2. Registered Mixes

Achieve Liquid or Achieve 80 DG, Avenue 200-C, Everest, Horizon, Puma 120 Super. Refer to the

label and the tank mix partner label for specific instructions on registered crops, rates, timing and other directions for use.

3. Crops

spring wheat, durum wheat, barley (not underseeded to legumes).

4. Weeds Controlled

Controlled up to the 4 - leaf stage

american nightshade, ball mustard, bluebur, cocklebur, common ragweed, cow cockle, flixweed, green smartweed, lady's-thumb, night-flowering catchfly, pale smartweed, redroot pigweed, shepherd's-purse, triazine resistant pigweed, volunteer canola, volunteer sunflower.

Controlled up to the 8 - leaf stage

common buckwheat, common groundsel, kochia (5 cm high, 1-12 leaf), lamb's-quarters, Russian thistle (5 cm high, 2-12 leaf), stinkweed, tartary buckwheat, velvetleaf (8 cm high), wild buckwheat, wild mustard.

5. Weeds Suppressed

none.

6. When Used

Crops

Spring wheat and barley must be treated from the 4 leaf stage to the early flag leaf stage. Application before the 4 leaf stage may cause injury.

Weeds

For best results apply spray when weeds are in the seedling stage and not beyond the leaf stage indicated above.

7. Application Considerations

USER ADVICE NOTICE: Wear chemical resistant nitrile gloves when handling product concentrate.

Avoid spraying in temperatures greater than 25° C.

8. Environmental Considerations

Thumper and Approve contain a petroleum distillate that is moderately to highly toxic to aquatic organisms. Contamination of aquatic areas resulting from runoff may be reduced by including a vegetative strip

between the treated area and the edge of the water body. Appropriate buffer zones should be established between treatment areas and aquatic systems and treatment areas and significant wildlife habitat.

Effects of Rainfall

Avoid application of this product when heavy rain is forecast.

Movement in Soil

Not applicable.

9. Grazing And Cropping Restrictions

Do not permit livestock to graze field or cut for hay within 30 days of application. Withdraw meat animals from treated fields at least 3 days before slaughter.

ARROW/CENTURION/ SELECT (*clethodim*)

HERBICIDE GROUP - 1

1. Formulations

Emulsifiable concentrate; clethodim (240 g/L)

2. Registered Mixes

Arrow is to be used with the adjuvant X-Act. Centurion and Select are to be used with the adjuvant Amigo.

Lontrel (canola), Muster (canola), Pursuit (field peas, Clearfield canola), Liberty (LibertyLink canola).

3. Crops

Canola, seedling alfalfa, field peas.

4. Weeds Controlled

Annual Grasses

barnyardgrass, crabgrass (smooth and large), fall panicum, green foxtail, Persian darnel, Proso millet, volunteer barley, oats, wheat and corn, wild oats, witchgrass, yellow foxtail.

5. Weeds Suppressed

quackgrass.

6. When Used

Crops

Tolerant at all growth stages.

Weeds

Apply when annual grasses and volunteer cereals are in the 2 to 6 leaf stage. Most effective control occurs prior to tillering when the annual grasses are small and actively growing. Quackgrass should be 6 to 15 cm high.

7. Application Considerations

Apply only to light to moderate weed infestations in good crop stands that are not stressed by low fertility or inadequate moisture. Allow 4 days between application and application of any other chemical not recommended as a tank-mix combination on the label. Thorough pre-plant tillage operations are required on fields where sod or forage grass crops were grown the previous year.

8. Environmental Considerations

Overspray or drift to important wildlife habitats such as shelter belts, wetlands, sloughs or dry slough borders, woodlots, vegetated ditchbanks and other cover on the edges of fields must be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Effects of Rainfall

Rainfall within 1 hour of application may reduce effectiveness.

Movement in Soil

Clethodim is weakly absorbed by soil particles, but is not prone to leaching. Rapidly degraded in soil.

9. Grazing And Cropping Restrictions

Do not use crops for grazing of livestock or green feed or cut treated crops for forage until 60 days after application to annual crops or 30 days after application to seedling alfalfa.

Re-cropping

No restrictions.

ASSERT 300SC (imazamethabenz)

For use in the Peace River, Okanagan and Creston Flats Only

HERBICIDE GROUP - 2

1. Formulation

Assert 300 SC (suspension concentrate) - (300 g/L).

2. Registered Mixes

Tank mixes are only registered for use in the Peace River Region of BC.

Spring wheat, durum wheat and barley

2,4-D ester, MCPA ester, Estaprop, Refine Extra, Refine Extra + MCPA ester, Puma Super, Puma Super plus MCPA ester, Puma Super plus Refine Extra, Curtail M, Express Pack, Refine Extra plus MCPA ester, Frontline, Spectrum.

Spring wheat (including durum)

Attain, Puma Super, Puma Super plus Refine Extra, Trophy, Turboprop.

Do not apply Assert within 5 days of any herbicide that is not a registered tank mix.

3. Crops

wheat (spring and durum), barley (spring only)

4. Weeds Controlled

stinkweed, wild mustard, wild oats.

5. Weeds Suppressed

tartary buckwheat, wild buckwheat.

6. When Used

Crops

Application can be made up to and including the 6 leaf stage of crop. Tank-mixes containing 2,4-D ester, MCPA ester, Attain, Curtail M, Estaprop, Turboprop or Refine Extra should be applied only after crop has reached the 4 leaf stage. Earlier application could result in crop injury. Check tank-mix partner for specific details regarding crop staging.

Weeds or wild oat control

Apply Assert alone or in combination only when the majority of wild oat plants are at the 1 to 4 true leaf stage. Assert used alone will control wild mustard and stinkweed at the cotyledon to 6 leaf stage and provide partial control of wild buckwheat and tartary buckwheat when applied at the cotyledon to 4 leaf stage of weed growth.

7. Application Considerations

Do not spray if freezing weather is forecast or rain is forecast within 6 hours.

8. Environmental Considerations

Avoid application within 15 metres of waterbodies.

Effects of Rainfall

Assert may be applied up to 6 hours prior to rain.

Movement in Soil

Negligible leaching.

9. Grazing And Cropping Restrictions

Do not graze treated fields or cut treated forage for silage or hay. Barley and wheat grain or straw from fields treated with Assert can be fed to livestock.

Do not apply to the same field in two successive years.

Re-cropping

Rotations to the following crops can be made the year following application of ASSERT:

Black and Grey wooded soil zones: spring wheat, durum wheat, barley, sunflower, canola (including Clearfield varieties), flax, peas.

Brown and dark brown soil zones: spring wheat, durum wheat, barley and sunflower, canola (including Clearfield varieties).

To assess potential damage to crops not listed above, conduct a field bioassay (a test strip grown to maturity) the year before planting any crop. Lentils and sugar beets have been observed to be particularly sensitive to ASSERT residues in the soil.

ASSURE II (quizalofop p-ethyl)

HERBICIDE GROUP - 1

1. Formulation

Emulsifiable concentrate; 96 g/L

2. Registered Mixes

Canola - Muster plus Canplus 411 or Merge adjuvant.

Creeping red fescue (seed production) - Ally plus Canplus 411, Merge or Sure-Mix adjuvant.

3. Crops

Canola, seed alfalfa, field peas, seedling legumes for seed production (bird's-foot trefoil, alsike, red and white clover, sweetclover, sainfoin, seedling or established creeping red fescue for seed production.

4. Weeds Controlled

0.38 L/ha - green foxtail, volunteer barley, volunteer corn, volunteer oats, volunteer wheat, wild oats

0.50 L/ha - above weeds plus barnyard grass and wild oats, fall panicum, Proso millet, old witchgrass, yellow foxtail

0.74 L/ha - above weeds plus quackgrass.

5. Weeds Suppressed

quackgrass at 0.50 L/ha

6. When Used

Crop

Apply post-emergence to crops.

Annual Grassy Weeds

2 leaf to early tillering. Best results on wild oats are obtained if application is made prior to tillering. Use higher rate of Assure II when wild/volunteer oats have tillers or when wild oats are present in high populations.

Quackgrass

2-6 leaf stage.

7. Application Considerations

Extreme care must be taken to prevent drift to desirable plants or non-target agricultural land. Grass crops, including wheat, barley, rye, oats, and corn are highly sensitive to Assure II.

8. Environmental Considerations

Do not apply to terrain where there is a potential for surface run-off to enter aquatic systems. This product is toxic to fish. Over-spray or drift to fish-bearing water must be avoided. Over-spray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders and woodlots must be avoided. Leave a 15-metre buffer zone between the last spray swath and the edge of any of these habitats.

Effects of Rainfall

Rainfall within 1 hour of application may reduce control.

Movement in Soil

No soil movement.

9. Grazing And Cropping Restrictions

Do not graze treated fields or harvest for forage or hay. **Do not** apply to canola within 64 days of harvest. **Do not** apply to processing peas within 65 days of harvest.

ATTAIN (*fluroxypyr + 2,4-D ester*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 4

1. Formulations

Attain A - fluroxypyr (180 g/L)

Attain B - 2,4-D low volatile ester (564 g/L)

2. Registered Mixes

spring, durum wheat - Achieve Liquid, Everest, Horizon, Assert 300SC, Puma Super.

barley - Achieve Liquid, Assert 300SC.

3. Crops

spring and durum wheat, spring barley, the following seedling and established grass crops for seed production: tall fescue, creeping red fescue, intermediate wheatgrass, crested wheatgrass, meadow brome grass, smooth brome grass, timothy.

4. Weeds Controlled

bluebur, burdock, volunteer canola, cleavers (1-4 whorl), sweetclover, cocklebur, field horsetail*, flixweed, hoary cress*, goat's-beard, kochia**, lamb's-quarters, mustards (not green, dog or tansy), plantain, prickly lettuce, ragweed, shepherd's-purse, stinkweed, annual sunflower, vetch, wild radish, wild mustard.

The following weeds are controlled at the highest labeled rate when rapidly growing: blue lettuce*, dandelion (spring rosettes), docks, dog mustard, field bindweed*, field peppergrass, gumweed, hairy galinsoga, hedge bindweed, lady's-thumb, round-leaved mallow(1-6 leaf), leafy spurge*, oak-leaved goosefoot, stork's-bill(1-8 leaf), redroot pigweed, Russian thistle, volunteer flax, smartweed, tansy, tartary buckwheat, wild buckwheat (1-4 leaf)

* top growth control only

** including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme

5. Weeds Suppressed

common chickweed (up to 8 cm)**, Canada thistle*, hemp-nettle (2-6 leaf stage), annual sowthistle, perennial sowthistle*

* top-growth control only

** Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme

6. When Used

Crops

Apply between the 4 leaf and the flag leaf stage. Application before the 4-leaf stage of wheat and barley may cause severe twisting of leaves and leaf, stem and head deformities that may reduce yield up to 10%. **Do not** apply later than the flag-leaf stage.

Weeds

Apply when weeds are in the 2 - 4 leaf stage.

7. Application Considerations

Avoid spraying near sensitive crops such as alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers or tomatoes.

8. Environmental Considerations

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic matter such as clay). Avoid application of this product when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body.

Effects of Rainfall

Do not apply if rain is expected within 1 hour.

Movement in Soil

2,4-D and fluroxypyr bind lightly to soil organic matter but do not bind readily to sand, silt or clay. Due to their relatively short half-life, they rarely move deeper than 15 cm deep in soil.

13. Grazing And Cropping Restrictions

Do not permit lactating dairy animals to graze treated fields within 7 days of application.

Do not harvest forage or cut for hay within 30 days after application.

Withdraw meat animals from treated fields at least 3 days before slaughter. **Do not** harvest the treated mature crop within 84 days after application.

Re-cropping

Fields previously treated with Attain herbicide tank mix can be seeded the following year to: barley, canola, flax, forage grasses, lentils, mustard, oats, peas, rye and wheat or fields can be summerfallowed.

AVADEX EXTRA STRENGTH BW/MicroActiv (*triallate*)

HERBICIDE GROUP - 8

1. Formulation

Avadex Extra Strength BW; emulsifiable concentrate; 480 g/L. Avadex MicroActiv; granular 10%

2. Registered Mixes

Treflan after seeding (wheat, barley).

Dry bulk or liquid fertilizer.

3. Crops

spring wheat, durum wheat, barley, canola, field peas.

Underseeding legumes

This product can be used in labelled crops which are to be underseeded to forage legumes such as alfalfa, clovers and trefoil provided that the legumes are not harvested for green chop, silage or hay in the year of seeding.

4. Weeds Controlled

wild oats. Green foxtail when mixed with Treflan.

5. Weeds Suppressed

None

6. When Used

Spring

- Preplant incorporated: durum wheat, spring wheat, barley, canola/rapeseed, dry peas (Avadex Extra Strength BW)
- Postplant incorporated: barley, spring wheat, durum wheat.

Fall

all crops above (except peas).

7. Application Considerations

Incorporation

Conventional tillage systems

Two incorporation operations are necessary for thorough mixing. The second incorporation should

be at right angle to the first with a suitable disc or cultivator type implement. For application made after seeding, incorporate to a depth of 4 to 5 cm using suitable equipment such as a harrow. The second incorporation must be conducted at right angle to the first any time prior to crop emergence. Adjust incorporation depth so as not to disturb the seed.

Do not incorporate more than 5 cm. This can be accomplished by setting the tillage equipment to work the soil no deeper than 7.5 to 10 cm. Shallow incorporation is necessary to prevent dilution of the product. Deep incorporation decreases wild oat control and increases the risk of crop injury.

Liquid

the first incorporation should be completed as soon as possible on the day of spraying. The second incorporation may or may not be done immediately after the first.

Granules

the first incorporation should be completed within 48 hours of application. The second incorporation may or may not be done immediately after the first. For maximum results from spring application of granules, however, delay second incorporation for at least 3 to 5 days.

Minimum tillage/Direct seeding systems (Peace River Region Only):

Avadex MicroActive:

Fall Minimum Tillage: Fall minimum tillage applications should be made when the average soil temperature at the 5 cm depth is 4° C or less and within 3 weeks of soil freeze up. This situation generally occurs by Oct. 1. No fall incorporation is required. Incorporation may be conducted in the spring prior to seeding or at seeding. **Do not** use this treatment on soil less than 2% organic matter. Under excessively warm or wet conditions between application and crop emergence, control may be reduced. For best results on heavy wild oat infestations, use the incorporated treatments only.

Spring Minimum Tillage: Apply granules in the spring when the average soil temperature at the 5 cm depth is 4°C or less. Applications should be made to soils that have adequate trash cover to prevent soil erosion between application and seeding. Ensure that the time between application and incorporation is a minimum of 10 to 14 days. **Do not** apply more than 4 weeks before intended seeding.

8. Environmental Considerations

Effects of Rainfall

Rainfall of at least 1.5 cm within 2 weeks after application in the spring is required to ensure maximum performance of the spring treatment. Rainfall immediately following application and before incorporation may result in reduced wild oat control due to loss of product into the atmosphere.

Movement in Soil

Negligible.

9. Grazing and Cropping Restrictions

Do not graze or harvest underseeded forage legumes for hay, green feed or silage during the year of seeding.

Succeeding Crops

Oats should not be seeded into soil treated with Avadex Extra Strength BW/MicroActiv in the previous year.

AVENGE 200-C (*difenzoquat*)

HERBICIDE GROUP - 8

1. Formulations

aqueous solution (200 g/L).

2. Registered Mixes

Avenge 200C wheat varieties and barley

2,4-D Ester (**Do not** use amine formulations), 2,4-D B (Embutox 625, Caliber 400, Cobutox 400), Ally, Ally + MCPA, Bucril M, Curtail M, Diphenoprop 600, Estaprop, Turboprop 600, MCPA ester, Pardner, Pardner + MCPA ester, Refine Extra, Thumper.

Avenge 200C wheat varieties and barley underseeded to legumes: 2,4-DB (Embutox 625, Caliber 400, Cobutox 400).

Refer to label for use rates on tank mixes and for special instructions regarding tank mixing with Ally and Refine Extra.

Mixing with other Pesticides: Not recommended. **Do not** mix Avenge herbicide with or spray within 5 days, any formulation containing MCPA amine, 2,4-D amine, Banvel, Target, or any other herbicide other than those listed above, as crop injury or reduced weed control may result.

3. Crops

barley (all varieties), spring wheat (AC Barrie, Neepawa, Glenlea, Selkirk, Columbus, Fielder, Leader, Katepwa, Conway, Lancer, Oslo, Genesis, Pasqua, Bluesky, Wildcat, Biggar, CDC Makwa, CDC Teal and Cutler varieties only), winter wheat (Norstar), fall rye (Cougar, Puma, Frontier, Kodiak and Rymin)

Triticale (Welsh, Carman), forage crops underseeded to barley or wheat: alfalfa, red clover, sweetclover, bird's-foot trefoil, creeping red fescue, meadow fescue, bromegrass, timothy, crested wheatgrass, orchardgrass, Russian wild ryegrass, reed canarygrass, Kentucky bluegrass; seedling grasses for forage: meadow foxtail, tall wheatgrass, pubescent wheatgrass, streambank wheatgrass, tall fescue, meadow bromegrass.

Do not treat forages without a companion crop.

4. Weeds Controlled

wild oats.

5. Weeds Suppressed

None.

6. When Used

Crop

Do not apply after the 6th leaf stage of barley, fall rye, triticale, spring and winter wheat. For seedling grasses for forage apply up to three leaf stage of wild oats. Grasses may show signs of damage in the year of application but will recover the following year. **Do not** treat forages unless seeded with a companion crop. **Do not** tank-mix Avenge with any broadleaved herbicide, except 2,4-DB for use on under-seeded forages.

Weeds

Apply 3 to 5 leaf stage of the wild oats; wild oats at the 2 leaf stage and younger are not controlled. Avenge should be applied when the majority of wild oats are in the 3 to 4 leaf stage, to minimize early wild oat competition.

7. Application Considerations

Under cool weather conditions, or under high humidity the crop may show some initial burning on lower leaves, however, there will be no adverse effects on crop maturity or yield. **Do not** apply AVENGE if the crop is under extreme drought stress or is showing effects of excessive moisture (poor drainage).

8. Environmental Considerations

Effects of Rainfall

Rainfall within 6 hours will seriously decrease activity.

Movement in Soil

Strongly absorbed by soil particles.

9. Grazing and Cropping Restrictions

Do not graze or feed cereal crop for 8 weeks after treatment. Treated under-seeded forages and seedling grasses are NOT to be grazed or harvested for feed during the year of seeding. Straw from treated fields can be fed to livestock.

Re-cropping

Rotation to other crops can be made the following season unless contra-indicated by the tank mix partner label.

AXIAL (*pinoxaden*)

For Use in the Okanagan, Creston Flats and Peace River Region Only

HERBICIDE GROUP - 1

1. Formulation

emulsifiable concentrate (100 g/L)

2. Registered Mixes

Refine Extra, Refine Extra plus MCPA ester, Bucril M, Frontline, Curtail M, Prestige, Trophy, Mextrol, MCPA ester. Consult the label of the tank-mix partner for a list of broadleaf weeds controlled, rates, timing, re-cropping restrictions, grazing interval restrictions, directions for use and precautions.

Note: The adjuvant Adigor must be added to all applications of Axial.

3. Crops

spring wheat, barley

4. Weeds Controlled

Grassy weeds

green and yellow foxtail, Proso millet, volunteer oats, volunteer canaryseed, wild oats.

5. Weeds Suppressed

None

6. When Used

Crop

Apply in the 1 leaf to flag leaf stage. **Do not** apply past the flag leaf stage.

Weeds

Apply to grassy weeds in the 1 to 6 leaf stage (prior to the fourth tiller).

7. Application Considerations

Do not apply to crop that is stressed by conditions such as frost, low fertility, drought, flooding, disease or insect damage as crop injury may result.

8. Environmental Considerations

Avoid application of this product when heavy rain is forecast. A buffer zone of 1 metre is 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, pastures, rangelands, and shrublands). A buffer zone of 1 metre is required adjacent to sensitive freshwater habitats less than 1 metre deep (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, and wetlands). Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Effects of Rainfall

Can be used one hour before rainfall.

Movement in Soil

No appreciable leaching.

9. Grazing And Cropping Restrictions

Do not graze crop for 7 days following application.

Re-cropping

Do not seed any crop until the year following application.

BADGE, BUCTRIL M, LOGIC M, MEXTROL (bromoxynil plus MCPA)

HERBICIDE GROUP - 6,4

1. Formulation

Badge, Logic M, Mextrol - bromoxynil (225 g/L) plus MCPA (225 g/L)

Buctril M - bromoxynil (280 g/L) plus MCPA (280 g/L)

2. Registered Mixes

Achieve Liquid, Ally, Avenge 200-C, Everest, Horizon, MCPA (amine, ester, K salt), Puma 120 Super, Refine Extra, Puma 120 Super plus Refine Extra.

Refer to Badge, Buctril M, Logic M, Mextrol label and label of tank mix partner for specific instructions on registered crops, mixing instructions, use areas within BC, etc.

3. Crops

wheat (spring, durum, winter), barley, oats, fall rye, field corn, established timothy for seed (and hay with Buctril M or Mextrol) and the following seedling grasses for seed production (in the year of establishment and not underseeded to legumes): brome grass, timothy, slender wheatgrass, meadow fescue, Russian wild rye, intermediate wheatgrass, creeping red fescue, reed canarygrass, crested wheatgrass, orchardgrass, tall wheatgrass, meadow foxtail.

4. Weeds Controlled

Controlled up to 8-leaf stage

wild buckwheat, tartary buckwheat, common buckwheat, stinkweed, wild mustard, lamb's-quarter's, wormseed mustard, common ragweed, common groundsel.

Controlled up to 4 leaf stage

annual smartweeds, ball mustard, redroot pigweed, flixweed, bluebur, kochia (before plants are 5 cm high), shepherd's-purse, lady's-thumb, cow cockle, American nightshade, night-flowering catchfly, Russian thistle (before 5 cm high), scentless chamomile (spring annuals only), cocklebur, velvetleaf (up to 8 cm in height), volunteer sunflowers, volunteer canola.

5. Weeds Suppressed

perennial sowthistle, Canada thistle

6. When Used

Crop

Apply to wheat, barley, oats in the 2-leaf to early flag leaf stage; to winter wheat and fall rye in the 2 to 4 leaf stage in the fall or after growth begins in the spring (prior to flag leaf); to field corn in the 4 to 6 leaf stage; to established timothy for hay (Buctril M and Mextrol) in the 3 to 6 leaf stage; to established timothy for seed (Buctril M and Mextrol) prior to the shot blade stage in the year of production and to seedling grasses for seed production in the 2 to 4 leaf stage.

Weeds

Refer to WEEDS CONTROLLED above.

7. Application Considerations

For best results spray when weeds are in the seedling stage. Apply in good growing conditions. Application must be made before the crop shields the weeds.

Warning: Wear chemically resistant nitrile gloves.

8. Environmental Considerations

For the protection of non-target habitats, overspray or drift to sensitive habitats must be avoided. **Do not** apply during periods of dead calm, when winds are gusty or when wind speed is greater than 16 km/hour at 2 metres high above ground at the site of application. 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 mixture. Contamination of aquatic areas resulting from runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Effects of Rainfall

Rainfall within 1 hour of application may reduce effectiveness.

Movement in Soil

Readily leached from soil.

9. Grazing And Cropping Restrictions

Do not use treated crops for grazing of livestock or green feed until 30 days after application. **Do not** cut treated crops for forage until 30 days after application.

Re-cropping

No restrictions.

BANVEL II, ORACLE (dicamba)

HERBICIDE GROUP - 4

1. Formulations

Banvel II, Oracle - solution - (480 g/L).

2. Registered Mixes

Ally, 2,4-D amine, MCPA, Sencor, glyphosate.

Refer to Banvel II, Oracle label and label of tank mix partner for specific instructions on registered crops, mixing instructions, use areas within BC, etc.

3. Crops

wheat (winter, durum, spring), oats, barley, spring rye, field corn, grass pastures and rangeland, reduced tillage (fallow or prior to seeding cereals, corn), seedling and established creeping red fescue (seed production only), the following seedling grasses (seed and forage production): smooth brome grass, meadow fescue, tall fescue, meadow foxtail, orchardgrass, creeping red fescue, timothy, crested wheatgrass, intermediate wheatgrass, pubescent wheatgrass, slender wheatgrass, streambank wheatgrass, tall wheatgrass.

Do not underseed to legumes.

4. Weeds Controlled

Banvel II, Oracle alone in cereals and seedling grasses (for seed and forage production) at 230 - 290 ml/ha: wild buckwheat, tartary buckwheat, cow cockle, lady's-thumb, green smartweed, corn spurry, cleavers (high rate).

Banvel II, Oracle in cereals at 230 ml/ha plus 2,4-D amine (not in oats) or MCPA amine or K salt (not in rye): above weeds plus burdock (young seedlings), volunteer canola (2 to 4 leaf stage), cocklebur, flixweed, hemp-nettle (use MCPA K), kochia, redroot pigweed, Russian pigweed, wild radish, shepherd's-purse, Russian thistle or plus **Sencor** (spring wheat, barley) to additionally control chickweed and cleavers.

Banvel II, Oracle in field corn (post-emergence only) **at 600 ml/ha to 1.25 L/ha:** tartary buckwheat, wild buckwheat, cleavers, cow cockle, Canada fleabane, lady's-thumb, lamb's-quarters, hare's-ear mustard, Indian mustard, tumble mustard, wild mustard, wormseed mustard, redroot pigweed, Russian pigweed, common ragweed, false ragweed, giant ragweed, corn spurry, green smartweed, velvetleaf.

Banvel II, Oracle in creeping red fescue (new and established for seed production) **at 600 ml/ha:** wild buckwheat, tartary buckwheat, cow cockle, clover, lady's-thumb, corn spurry, green smartweed.

Banvel II, Oracle in grass pastures and rangeland at 2.1 to 4.6 L/ha: field bindweed, English daisy, goldenrod, tansy ragwort, perennial sow-thistle, Canada thistle, goat's-beard, ground cherry, diffuse knapweed, pasture sage, sheep sorrel, thyme-leaved spurge, poverty weed.

Banvel II, Oracle in mixture with glyphosate or 2,4-D herbicides in reduced tillage systems (prior to seeding) and reduced tillage fallow systems: refer to the appropriate label and label of tank mix partner for a list of weeds controlled and instructions regarding varietal tolerance, mixing, timing, use rates, etc.

5. Weeds Suppressed

Canada thistle and perennial sowthistle (top-growth), curled dock (pasture, rangeland).

6. When Used

Crop

spring wheat, barley, oats: apply alone or tank mixed with 2,4-D amine (not in oats), MCPA amine or MCPAK in the 2 to 5 leaf stage. A tank mix with Sencor can be used in barley (not Klondike) when barley is in the 2 to 3 leaf stage;

winter wheat: apply alone or tank mixed with 2,4-D amine, MCPA amine or MCPA-K in the spring

when crop is 15 to 25 cm tall or before the shot blade stage; **spring rye:** apply alone or tank mixed with 2,4-D amine when crop is in the 2 to 3 leaf stage; **field corn:** apply alone or tank mixed with 2,4-D amine post-emergence to corn from emergence to 50 cm in height. Use directed spray drop nozzles (apply to weeds and soil only) when crop is 20 to 50 cm high; **creeping red fescue** (seed production) - in new seedling stands apply when crop is 5 cm tall. In established stands apply up to the shot-blade stage. (may be tank mixed with 2,4-D amine, particularly for dandelion control in the rosette or early bud stage); **seedling grasses for forage and seed production:** apply alone or tank mixed with 2,4-D amine or MCPA amine or MCPA K at the 2-4 leaf stage. **Note:** If the seedling grass is underseeded with a cereal crop, refer to cereal section of label for additional information on application staging and rate; **pasture and rangeland:** apply when weeds are actively growing; **reduced tillage systems (prior to seeding):** may be tank mixed with glyphosate herbicide and applied to emerging annual grasses and broadleaved weeds in direct seeding systems prior to seeding wheat, barley, oats and field corn. Planting should follow soon after application since this tank mix does not provide residual weed control; **summerfallow/stubble:** refer to product label for use instructions when mixed with glyphosate or 2,4-D for perennial thistle control.

7. Application Considerations

Note: Barley is the cereal crop most sensitive to dicamba products. Avoid overlapping. **Do not** apply higher than the maximum rates indicated for barley. **Do not** spray except at the recommended leaf stage.

Best application is when crop is under good growing conditions and air temperature 10° to 25°C. Avoid application if risk of severe drop in night temperature is forecast. Avoid application when crop is under stress. **Do not** enter treated areas until spray has thoroughly dried.

8. Environmental Considerations

Do not apply on or near desirable trees or plants, or in locations where the herbicide may be washed or moved into contact with their roots. Prevent drift of product to desirable plants.

Effects of Rainfall

Do not spray if rain is expected within 4 hours.

Movement in Soil

Dicamba leaches more readily in sandy soils than in clay soils.

9. Grazing And Cropping Restrictions

Do not slaughter meat animals fed treated forage or grazed on treated areas within 30 days after the herbicide application. If treated vegetation has been consumed by meat animals within 30 days of application, feed the animals with untreated diet for 30 days before slaughter. Grazing and haymaking restrictions for dairy animals varies from 0 to 30 days after application depending on use rate (0 days for use rates up to 1.25 L/ha). In corn, do not graze cattle on treated crop, or harvest for silage until 7 days following the application and at least 12 weeks if a tank mix treatment is used.

Re-cropping

Certain broadleaf crops such as sweet corn, lentils, peas, canola and flax can be injured by a pre-seeding application of dicamba plus glyphosate and should not be planted after the use 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. If Banvel II, Oracle have been applied at 1.5 L/ha for control of Canada thistle rosettes in summerfallow/stubble then grow cereals, soybeans, field corn, white beans or canola the following year.

BASAGRAN FORTE (bentazon)

HERBICIDE GROUP - 6

1. Formulations

liquid formulation (480 g/L).

2. Registered Mixes

none.

3. Crops

field corn, field peas.

4. Weeds Controlled

bird rape*, buttercup, cleavers, cocklebur, common chickweed, common groundsel*, common ragweed*, corn spurry, flower-of-an hour, giant ragweed, hairy galinsoga, hairy nightshade, jimsonweed, lady's-thumb, lamb's-quarters*, low cudweed, purslane, shepherd's-purse, stinkweed, stork's-bill, velvetleaf**, volunteer canola, wild mustard, wild radish.

* triazine tolerant strains of these weeds are controlled

** will defoliate velvetleaf 4 leaf or larger but re-growth may occur

5. Weeds Suppressed

Canada thistle, field bindweed (treat before dark green and begins to trail), redroot pigweed*, Russian thistle, yellow nutsedge.

6. When Used

Crop

field corn: tolerant at all growth stages; **field peas:** tolerant after 3 pairs (or 3 nodes) are present.

Weeds

Refer to label for specific timing to obtain optimum control of individual weed species.

7. Application Considerations

Basagran works primarily through contact action. Uptake into the plant occurs primarily through the leaves. Thorough coverage of foliage is important for consistent weed control. Failure to penetrate crop or weed leaf canopies with the spray will result in incomplete control of small weeds growing underneath. Cool weather conditions or drought will delay herbicidal activity and if prolonged, may result in poor weed control. **Do not** apply to any crops that have been subjected to stress from conditions such as hail damage, flooding, hot, humid weather, drought, widely fluctuating temperature conditions, prolonged cold weather or injury from prior herbicide applications, as crop injury may result.

8. Environmental Considerations

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. **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.

Effects of Rainfall

Rainfall within 6 to 8 hours of application may result in reduced effectiveness.

Movement in Soil

Not adsorbed to soil. Does not leach below plough layer.

9. Grazing And Cropping Restrictions

Do not graze the treated crops or cut for hay; sufficient data are not available to support such use.

Re-cropping

no restrictions.

BONANZA (*trifluralin*)

See page: 127, 129

BASAGRAN (*bentazon*)

HERBICIDE GROUP - 6

1. Formulations

liquid formulation (480 g/L).

2. Registered Mixes

Basagran plus 2,4-D amine or ester (spring wheat only).

Surfactants: All crops - use Assist Oil Concentrate or XA Oil Concentrate.

3. Crops

spring wheat (excluding durum), field corn, field peas, seedling grasses for seed production only: (bromegrass, creeping red fescue, meadow foxtail, orchardgrass, timothy and crested wheatgrass), seedling legumes for seed production only: (alfalfa, red clover, alsike clover and sainfoin), established legumes for seed production only: (alfalfa, sainfoin and sweetclover).

4. Weeds Controlled

bird rape*, buttercup, cleavers, cocklebur, common chickweed, common groundsel*, common ragweed*, corn spurry, flower-of-an hour, giant ragweed, hairy galinsoga, hairy nightshade, jimsonweed, lady's-thumb (smartweed), lamb's-quarters*, low cudweed, purslane, shepherd's-purse, stinkweed, stork's-bill, velvetleaf**, volunteer canola, wild mustard, wild radish

* triazine tolerant strains of these weeds are controlled

** will defoliate velvetleaf 4 leaf or larger but re-growth may occur

5. Weeds Suppressed

Canada thistle, field bindweed, redroot pigweed*, Russian thistle, yellow nutsedge.

6. When Used

Crop

spring wheat and field corn: tolerant at all growth stages; field peas: tolerant after 3 pairs (or 3 nodes) are present. seedling forage legumes: tolerant after 3rd trifoliate leaf stage; seedling forage grasses: tolerant at the 1 to 7 leaf stage. established forage legumes: tolerant before crop canopy closes and before flowering.

Weeds

refer to label for specific timing to obtain optimum control of individual weed species.

7. Application Considerations

Basagran works primarily through contact action. Uptake into the plant occurs primarily through the leaves. Thorough coverage of foliage is important for consistent weed control. Failure to penetrate crop or weed leaf canopies with the spray will result in incomplete control of small weeds growing underneath. Cool weather conditions or drought will delay herbicidal activity and if prolonged, may result in poor weed control. **Do not** apply to any crops that have been subjected to stress from conditions such as hail damage, flooding, hot, humid weather, drought, widely fluctuating temperature conditions, prolonged cold weather or injury from prior herbicide applications, as crop injury may result.

8. Environmental Considerations

Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. **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.

Effects of Rainfall

Rainfall within 6 to 8 hours of application may result in reduced effectiveness.

Movement in Soil

Not adsorbed to soil. Does not leach below plough layer.

9. Grazing And Cropping Restrictions

Do not graze the treated crops or cut for hay; sufficient data are not available to support such use.

A 50 day pre-harvest interval is required after application, before harvesting the treated crop.

Re-cropping

no restrictions.

BROMOTRIL, BROTEX, KORIL, PARDNER (bromoxynil)

HERBICIDE GROUP - 6

1. Formulations

Bromotril - emulsifiable concentrate (240 g/L)

Brotex - emulsifiable concentrate - (240 g/L)

Koril - emulsifiable concentrate (235 g/L)

Pardner - emulsifiable concentrate - (280 g/L)

2. Registered Mixes

Avenge 200-C, Avenge 200-C plus MCPA ester, Achieve Liquid, Banvel II, Horizon, MCPA, 2,4-D, Roundup, Select

Note: refer to labels for use information on specific tank mixes for each crop.

3. Crops

spring wheat (including durum), winter wheat (fall application only), fall rye (spring application), barley, oats, triticale, field corn, canaryseed (seed production), minimum or zero tillage, the following seedling grasses for seed production in the year of establishment and not underseeded to legumes (Pardner, Bromotril 240): brome grass, crested wheatgrass, intermediate wheatgrass, meadow fescue, creeping red fescue, orchardgrass, reed canarygrass, Russian wild ryegrass, slender wheatgrass, tall wheatgrass, timothy. Bromotril 240 can be used on bromoxynil tolerant canola (Navigator varieties).

Underseeding

Do not underseed to Legumes.

4. Weeds Controlled

seedling to 4 - leaf stage

green smartweed, pale smartweed, bluebur, cocklebur, common ragweed, cow cockle, kochia, American nightshade, Russian thistle*, stinkweed, velvetleaf**, pigweed (including triazine resistant), wild mustard.

seedling up to 8-leaf stage

volunteer buckwheat, common groundsel, lamb's-quarters (including triazine resistant), tartary buckwheat, wild buckwheat.

* Spray plants before 5 cm high

** Spray plants before 8 cm high

5. Weeds Suppressed

none

6. When Used

Crop

spring and winter wheat, barley, oats, fall rye, and triticale: apply from the 2-leaf to early flag-leaf stage of the crop. Winter wheat may be treated from the 2 to 4-leaf stage in the fall. Fall rye and winter wheat may be treated from the time growth begins in the spring to the early flag leaf stage. **Do not** apply during or after the boot stage; **field corn:** apply from the 4 to 8 leaf stage. Use drop pipes when corn is past the recommended growth stage; **canaryseed:** apply from the 3 to 5 leaf stage; **seedling grasses (seed production):** apply from the 2 to 4 leaf stage.

Weeds

Most weeds are controlled in the seedling to 4-leaf stage (seedling to 5 cm for Russian thistle and Kochia). Apply to volunteer buckwheat, common groundsel, lamb's-quarters (including triazine resistant), tartary buckwheat, wild buckwheat before plants are 8 cm tall. Best results are obtained when weeds are very young and actively growing. Use the higher rates recommended for each crop when the weeds are past 4-leaf stage or when infestations are heavy.

7. Application Considerations

Bromoxynil is a contact herbicide. It is therefore important to spray early before the crop canopy restricts spray coverage of the weeds, reducing control. Avoid spraying during severe drought or high temperature (30°C)

Corn

Do not spray under conditions of high humidity or high temperature (greater than 30°C). Temporary crop injury in the form of leaf scorching may occur in adverse growing conditions (especially if applied during or after periods of cool and wet, or hot and humid weather conditions.) Use the higher rate of application for control of triazine resistant annual broadleaved weeds including lamb's-quarter and redroot pigweed.

Do not add oil or surfactant.

8. Environmental Considerations

Do not contaminate irrigation/drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes. **Do not** apply this herbicide when heavy rain is forecast. Potential for contamination of aquatic areas as a result of runoff may be reduced by inclusion of a vegetative strip between the treated area and the edge of the water body. Avoid drifting of spray onto any body of water or other non-target areas.

Effects of Rainfall

Rainfall within 2 hours of application may reduce weed control.

Movement in the Soil

None.

9. Grazing And Cropping Restrictions

Do not use treated crops for grazing of livestock or green feed until 30 days after application.

Re-cropping

no restrictions.

BUCTRIL M (bromoxynil plus MCPA)

See page: 143

CALIBER (2,4-DB)

See page: 160

CENTURION (clethodim)

See page: 136

CLOVITOX PLUS/TOPSIDE/TROPOTOX PLUS (MCPB plus MCPA)

HERBICIDE GROUP - 4

1. Formulations

aqueous solution (375 g/L MCPB plus 25 g/L MCPA).

2. Registered Mixes

None.

3. Crops

wheat, barley, oats, rye, field corn, field peas, seedling clover (wild white, Dutch white, Ladino, alsike and red clovers), pasture, seedling alfalfa (seed production only), seedling grasses for forage (smooth brome grass, meadow brome grass, creeping red fescue, reed canarygrass, alai wild ryegrass,

timothy, crested wheatgrass, intermediate wheatgrass, pubescent wheatgrass, streambank wheatgrass, tall wheatgrass, slender wheatgrass, northern wheatgrass, western wheatgrass, green needlegrass.

Underseeding

clover can be used in a cereal companion crop.

4. Weeds Controlled

ball mustard, bull thistle, curled dock (rosette stage), lamb's-quarters, plantains (rosette stage), ragweed, redroot pigweed, shepherd's-purse, stinkweed, volunteer canola, wild mustard, wormseed mustard.

5. Weeds Suppressed

annual sow-thistle, Canada thistle, creeping buttercup, hemp-nettle, field bindweed, horsetail, tall buttercup, perennial sowthistle, wild radish.

6. When Used

Crops

Apply to: **cereals** in the 2 leaf to flag leaf stage; to **clover** after the primary or spade leaf forms to the fourth true leaf stage; to **field peas** with 3 to 6 expanded leaves or 2 to 5 nodes; to pasture after grazing or cutting; to **seedling grasses** in the 2 to 4 leaf stage; to **seedling alfalfa (seed production)** from the 3 to 6 trifoliolate leaf stage and to **field corn** when 45 cm high to before beginning of tasselling. Use drop nozzles in corn to avoid contacting corn leaves.

Weeds

Apply to annual weeds in the seedling stage; to field bindweed and buttercup when vigorously growing in the spring; to bull thistle in the rosette to early bud stage; to horsetail when 15 cm high; to Canada thistle when 15 cm high to early bud stage and to curled dock, perennial sow-thistle and plantains are young rosettes.

7. Application Considerations

Do not apply in hot weather (27°C or more) or under drought conditions. Application to seedling alfalfa for seed production may reduce crop vigour in the year of treatment but the crop recovers and yield is not normally affected.

8. Environmental Considerations

Appropriate buffer zones should be established between treatment areas and aquatic systems and treatment areas and significant wildlife habitat.

Effects of Rainfall

Rainfall before the foliage has dried from the spraying may decrease activity.

Movement in Soil

Readily leached from soil.

9. Grazing And Cropping Restrictions

Cereals, forage legumes, pastures and peas: Do not graze or cut for forage until after 30 days after application.

Seedling forage grasses: Do not graze the treated crop or cut for hay in the year of establishment.

COBUTOX (2,4-DB)

See page 160.

COMPITOX, MECOPROP (mecoprop)

HERBICIDE GROUP - 4

1. Formulations

Compitox, Mecoprop liquid (150 g/L)

2. Registered Mixes

None

3. Crops

wheat, barley, oats. **Do not** use on cereals underseeded with legumes.

4. Weeds Controlled

chickweed, black medick, plantain, buttercup, cleavers, corn spurry, stitchwort, lamb's-quarters, volunteer clover, wild mustard.

5. Weeds Suppressed

Canada thistle (top-growth).

6. When Used

Crop

Apply when cereals are between the 3 expanded leaf and early flag leaf (shot-blade) stage (about 10 to 15 cm high).

Weeds

Apply from the 2 to 4 leaf stage for best results.

7. Application Considerations

Apply in warm weather under good growing conditions. Avoid spraying in very hot weather or in drought conditions.

8. Environmental Considerations

Recommended water volume is essential for optimum weed control. **Do not** spray during high temperatures.

Effects of Rainfall

Decreased effectiveness will result if rain occurs within 4 - 6 hours.

Movement in Soil

Leached readily.

9. Grazing And Cropping Restrictions

Do not graze or feed treated crop to livestock.

Re-cropping

No restrictions.

CONVERGE PRO (isoxaflutole)

HERBICIDE GROUP - 28

Converge Pro for field corn production contains isoxaflutole (480 g/L) for annual grassy and broadleaved weed control in field corn. It can also be tank mixed with the glyphosate products Roundup Original, Roundup Transorb, Roundup Weathermax, Roundup Ultra, Touchdown IQ, Vantage and Vantage Plus Max for burn-down control of emerged weeds in all tillage systems and for improved control of established dandelion in

zero-tillage management systems. Converge Pro plus glyphosate can be applied just prior to corn emergence.

NOTE: The labelled tank-mix with atrazine herbicide for control of a number of annual grassy and broadleaved weeds has been withdrawn from the market in British Columbia.

Precautions:

Do not apply to field corn grown on loamy sands or sands and/or soils with less than 2 % O.M.

Do not graze or feed the treated immature corn to livestock prior to 60 days after application.

Do not harvest grain within 136 days of application.

Re-cropping

corn, soybean, alfalfa, potato, tomato, timothy, processing peas, spring canola, spring barley, spring oats and spring wheat may be seeded the year after treatment and to all classes of dry common beans in the second year after treatment. Treated corn fields may be planted to winter wheat in the same year of a spring application provided that 4 months have elapsed since application. A field bioassay must be conducted the year prior to growing any other crop of interest to confirm crop safety.

CREDIT (*glyphosate*)

See page: 171

CURTAIL M (*clopyralid plus MCPA*)

For use in the Peace River Region, Okanagan and Creston Flats Only

HERBICIDE GROUP - 4

1. Formulation

clopyralid (50 g a.e./L) plus MCPA ester (280 g a.e./L) emulsifiable concentrate

2. Registered Mixes

spring wheat, durum wheat, barley - Achieve Liquid, Assert 300 SC, Puma Super

spring wheat, barley - Avenge 200C, Refine Extra

spring wheat - Everest

spring/durum wheat - Horizon

3. Crops

All spring/durum wheat, barley, oats, established timothy for forage/hay, established timothy for seed production. **Do not** apply to crops underseeded to legumes or companion crops.

4. Weeds Controlled

Canada thistle*, common groundsel, dandelion*, flixweed**, lamb's-quarters, annual sowthistle, perennial sowthistle***, volunteer sunflower, volunteer canola, wild mustard, Russian pigweed, redroot pigweed, scentless chamomile (2-4 leaf), shepherd's-purse**, smartweed, stinkweed**, tartary buckwheat, wild buckwheat.

* season long control, with some re-growth in the fall

** spring seedlings (2 - 4 leaf)

*** top-growth control

5. Weeds Suppressed

kochia (2-4 leaf)

6. When Used

Crops

Apply from the 3 leaf to just before the flag leaf stage.

Weeds

Best results when applied to actively growing weeds in the 1-4 leaf (seedling) stage and when Canada thistle is between 10 cm and up to but not including the early bud.

Curtail M + Avenge 200-C: to the expanded 3 leaf to the 6 leaf stage of the crop and wild oats are in the 3-5 leaf stage. See Avenge 200-C description for other restrictions.

7. Application Considerations

When weeds are stressed due to drought, flooding or prolonged hot or cool temperatures (8°C or less), control can be reduced or delayed since weeds are not actively growing. Weed escapes may occur under prolonged stress conditions or low fertility. **Do not** make applications to weeds stressed

longer than 20 days due to lack of moisture as unsatisfactory control can result.

Do not apply Curtail M Herbicide directly to or otherwise permit it to come into contact with sunflowers, legumes, fruit or vegetable crops, flowers or other desirable broadleaved plants and take precautions to avoid spray mists drifting onto them.

8. Environmental Considerations

Curtail M contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. **Do not** contaminate these systems through direct application, disposal of waste or cleaning equipment.

Effects of Rainfall

Allow 6 hours between application and expected rainfall.

Movement in Soil

Clopyralid binds to organic matter in the soil, and is not likely to leach in agricultural soils. MCPA: Avoid use in porous soils as it is subject to leaching near wells and potable water bodies.

13. Grazing And Cropping Restrictions

Do not cut or graze treated fields of wheat, barley or oats within 7 days after application. **Do not** harvest cereals within 60 days of application. **Do not** apply to timothy within 7 days of harvest.

Re-cropping

Fields previously treated with Curtail M can be seeded to wheat, barley, oats and rye (not underseeded to forage legumes, clover or alfalfa), canola, corn, field peas, flax, forage grasses, mustard, sugar beets or can be summerfallowed. Seed only those crops listed above in the year following treatment.

Do not seed to field peas for at least 10 months following treatment. Very dry soil conditions following application can result in a risk of injury to field peas grown in rotation. If severe drought conditions are experienced during the months of June to August inclusive in the year of application, delay seeding field peas an additional 12 months (total 22 months following application).

2,4-D (amine, ester)

HERBICIDE GROUP - 4

1. Formulations

Numerous formulations of 2,4-D amines and low volatile esters are available from many manufacturers. Labels may be accessed through the Pest Management Regulatory Agency website at

http://pr-rp.pmra-arla.gc.ca/portal/page?_pageid=34,17551&_dad=portal&_schema=PORTAL

2. Registered Mixes

All formulations can be used in tank mix with other products. Refer to the label of tank mix partners and follow the most stringent precautions, restrictions and directions for use.

3. Crops

wheat (spring, winter) barley, spring rye, fall rye, field corn, grass pasture and rangeland, seedling and established grass crops for forage and seed production. Refer to specific label to determine registered crops, use rates and complete application instructions.

4. Weeds Controlled

Susceptible

Bluebur, burdock (before the 4-leaf stage), cocklebur, common plantain, daisy fleabane, false flax, false ragweed, flixweed, goat's-beard, kochia, lamb's-quarters, mustards (except dog and tansy), prickly lettuce, ragweeds (common and giant), redroot pigweed, Russian pigweed, Russian thistle, shepherd's-purse, stinging nettle, stinkweed, sweetclover, thyme-leaved spurge, wild radish, wild sunflower.

Harder to kill

dog and tansy mustard, oak-leaved goosefoot, groundsel, gumweed, hairy galinsoga, hawkweed, heal-all, hedge bindweed, knotweed (before the 4-leaf stage), leafy spurge, lady's-thumb, peppergrass, pineappleweed, prostrate pigweed, purslane, Russian knapweed, sheep sorrel, smartweed, tumble pigweed, velvetleaf, volunteer canola, yellow rocket (before the 4-leaf stage).

5. Weeds Suppressed

Use of higher rates are required to obtain top-growth control of: alfalfa, annual sowthistle,

biennial wormwood, blue lettuce, bull thistle, burdock, buttercup, Canada thistle, field bindweed, field dandelion, gumweed, hedge bindweed, hemp-nettle, hoary cress, horsetail, leafy spurge, mouse-eared chickweed, perennial sowthistle, Russian knapweed, tartary buckwheat, teasel, volunteer sunflower, wild buckwheat, yellow rocket.

6. When Used

Crops

wheat, barley, spring rye: apply from the 4-leaf stage of the crop up to just before the flag leaf stage (shotblade, boot-stage)

Do not apply before the 4-leaf stage, or leaf and spike deformities may develop.

Do not apply after the flag-leaf stage or during boot and flowering stages to avoid head sterility; **winter wheat, fall rye:** apply in the spring between full tillering and just before the flag leaf stage.

Do not apply during and after the flag leaf stage.

Do not apply in the fall; **field corn:** apply as an overall spray up until the corn is 15 cm high (leaf extended and before the 6 leaf stage. For corn between 15 to 75 cm in height use shielded sprays or use drop nozzles directing spray at the base of plants (keep spray off corn foliage).

Do not cultivate until at least two weeks after treatment as corn becomes brittle after spraying.

Do not use on corn more than 75 cm high or later than 2 weeks prior to silking or tasselling as sterility can result; **grass pasture/rangeland:** apply to susceptible weeds when they are in the seedling stage; **seedling and established grass crops (forage and seed production):** apply to seedling grass crops from the 3-leaf to just before the shot-blade stage of development. Apply to established grasses in the spring up to the shot-blade stage of the grasses or in the fall after harvest to control annual and biennial weeds. **Note:** use only the lowest label rate on seed crops.

Do not apply during pollen development or flowering stage of grass seed crops as seed yields could be reduced.

When tank mixed with Banvel II or Oracle herbicide, 2,4-D amine formulation may be used in forage grass and grass seed production as follows: **creeping red fescue:** apply tank mix to seedling stands 5 cm in height or to established

stands up to the shot blade stage. For dandelion control apply to fall rosettes or early bud stage; **seedling grasses (seed and forage production): smooth brome grass, meadow fescue, tall fescue, meadow foxtail, orchardgrass, creeping red fescue, timothy, crested wheatgrass, intermediate wheatgrass, pubescent wheatgrass, slender wheatgrass, streambank wheatgrass, tall wheatgrass:** apply tank mix to seedling grasses in the 2 to 4 leaf stage.

Weeds

Apply when weeds are in the 2 to 4 leaf stage and actively growing.

7. Application Considerations

Recommendations vary from label to label. Carefully follow instructions on the formulation being used. Spray during warm weather when the weeds are young and growing actively.

8. Environmental Considerations

Coarse sprays are less likely to drift. **Do not** allow spray drift to contact vegetables, flowers, grapes, fruit trees, ornamentals or other desirable plants. **Do not** spray during periods of high temperatures when crops may be under stress as damage to the crop may occur.

Effects of Rainfall

A rain free period of 4 to 6 hours is usually sufficient for effective weed control.

Movement in Soil

Under normal use conditions leaching does not pose a problem.

9. Grazing And Cropping Restrictions

Do not permit lactating dairy animals to graze treated fields within 7 days after application. **Do not** harvest forage or cut for hay within 30 days after application. Withdraw meat animals from treated field at least 3 days before slaughter.

DICHLORPROP-D, ESTAPROP, ESTAPROP PLUS, TURBOPROP, TURBOPROP 600 (2,4-D plus dichlorprop)

HERBICIDE GROUP - 4

1. Formulations

Dichlorprop-D, Estaprop, Estaprop Plus, Turboprop and Turboprop 600 - emulsifiable concentrate (300 g/L) dichlorprop plus (282 g/L) 2,4-D ester.

2. Registered Mixes

All formulations may be tank mixed with other herbicides. Refer to the product label and label of tank mix partner for specific use instructions.

3. Crops

spring wheat, winter wheat, barley.

Underseeding

Legume underseeding not recommended.

4. Weeds Controlled

annual sowthistle, bluebur, burdock, cocklebur, flixweed, kochia (before 5 cm high), lady's-thumb (before the four leaf stage), lamb's-quarters, night-flowering catchfly (spring annuals only), oak-leaved goosefoot, ragweed, redroot pigweed, Russian pigweed, round-leaved mallow, Russian thistle (before 5 cm high), shepherd's-purse, smartweed (before the four leaf stage), stinkweed, stork's-bill, tartary buckwheat (before the four leaf stage), volunteer rapeseed, volunteer sunflower (before the four leaf stage), wild buckwheat (before the four leaf stage), wild mustard, wormseed mustard, dog mustard, ball mustard.

5. Weeds Suppressed

Canada thistle, curled dock, perennial sowthistle.

6. When Used

Crop

spring wheat, barley: apply from the 4 leaf to early flag leaf (shot blade) stage. **winter wheat:** apply in spring only between full tillering and shot blade stage.

Weeds

Treat when weeds are young and actively growing. See WEEDS CONTROLLED above for special timings.

7. Application Considerations

Crops under stress from adverse environmental conditions such as excess moisture, drought, disease, etc. may suffer a further setback after application.

8. Environmental Considerations

Moderately to highly toxic to aquatic organisms. Avoid spray or vapour drifts onto susceptible plants such as grapes, tomatoes, sunflowers, beans, turnips, cauliflower, cabbage, rapeseed (canola), flax, alfalfa, clover, peas, potatoes, ornamental trees, shrubs or flowers, fruit trees, lawns, most vegetable crops or other desirable vegetation.

Effects of Rainfall

Rainfall within 3 to 4 hours of application may reduce effectiveness.

Movement in Soil

Leaching does not pose a problem.

9. Grazing And Cropping Restrictions

Dichlorprop-D and Turboprop 600

Do not graze or feed treated crop to livestock.

Estaprop, Estaprop Plus, Turboprop

Do not graze or cut treated crops for forage until 40 days after application. Withdraw meat animals from treated fields at least 3 days before slaughter.

DUAL II MAGNUM (metolachlor)

HERBICIDE GROUP - 15

1. Formulations

emulsifiable concentrate (915 g/L).

2. Registered Mixes

None for British Columbia.

3. Crops

field corn.

4. Weeds Controlled

American nightshade (pre-plant treatment is best), barnyardgrass, crabgrass (smooth & hairy), eastern black nightshade, fall panicum, green foxtail, old witchgrass, yellow foxtail, yellow nutsedge (pre-plant incorporated only).

5. Weeds Suppressed

redroot pigweed.

6. When Used

B.C. Interior - pre-plant incorporated or pre-emergence if irrigated within 10 days.

B.C. Coast - pre-emergent only.

7. Application Considerations

Use on mineral soils only. Do not apply to soils that contain less than 1% or more than 10% organic matter. Prepare a firm level seedbed, free from lumps and surface trash. **Do not** use on loose and rough seedbeds

Pre-emergence Applications

Acts mainly through the roots and shoots and therefore, effect on weeds depends on adequate rainfall or irrigation to move the herbicide into the soil. Optimum results are obtained when adequate rainfall occurs within 10 days after application otherwise use of a rotary-hoe is necessary.

8. Environmental Considerations

This product contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. For the protection of aquatic plants, overspray or drift to important wildlife habitats such as wetlands, sloughs or dry slough borders and water bodies should be avoided. Leave a buffer zone of 29 metres between the last spray swath and the edge of any of these habitats. Drift to emerging vegetation or newly emerged vegetation in shelterbelts or woodlots should be avoided.

Do not re-enter treated areas within 12 hours of treatment. If required, individuals may re-enter treated areas within 12 hours of treatment for short term tasks not involving hand labour if at least 4 hours have passed since application and long-sleeved shirt, long pants and chemical resistant gloves are worn.

Effects of Rainfall

Irrigation or rainfall is required within 10 days of application to move the herbicide to the weed germination zone.

Movement in Soil

Excess moisture may result in some movement of the herbicide on light soils.

9. Grazing And Cropping Restrictions

Do not graze treated immature crops (before ear emergence in corn) or cut for hay. Sufficient data are not available.

Re-cropping

winter cereals may be seeded 4 1/2 months following application.

DYVEL DSp (2,4-D plus mecoprop-p plus dicamba)

HERBICIDE GROUP - 4

1. Formulations

liquid solution - 2,4-D amine (295 g/L) plus mecoprop-p (80 g/L) plus dicamba (110 g/L).

2. Registered Mixes

Everest on spring wheat in the Peace River Region Only.

3. Crops

spring wheat, durum wheat, winter wheat, barley, field corn, grass pasture/rangeland, summerfallow and stubble fields.

Underseeding

Legume underseeding not recommended.

4. Weeds Controlled

Easy to Kill

annual smartweeds, annual sowthistle, ball mustard, cocklebur, common ragweed, corn spurry, hedge bindweed, knotweed, kochia, lady's-thumb, lamb's-quarters, prostrate pigweed, redroot pigweed, Russian thistle, stinkweed, tall mustard, volunteer buckwheat,

volunteer canola (2 to 4 leaf stage), wild buckwheat, wild mustard, wormseed mustard, yellow mustard.

Hard to Kill

cow cockle, field bindweed (apply when actively flowering), flaxweed, shepherd's-purse, tartary buckwheat, velvetleaf.

Additional weeds controlled in spring wheat with a tank mix with Everest: green foxtail, wild oats.

Pasture/rangelands

a wide range of broadleaf weeds including bull thistle, chicory, goat's-beard, tansy ragwort, white cockle, poison ivy, alders and sheep-laurel.

5. Weeds Suppressed

cleavers (1 to 2 whorl stage), Canada thistle (15 to 20 cm in fall stubble), round-leaved mallow.

6. When Used

Crop

spring, durum wheat: apply when grain is in the 3 to 5 leaf stage; **winter wheat:** apply in the spring before winter wheat is 30 cm high; **barley:** apply in the 2 to 3 leaf stage; **field corn:** apply before corn reaches 15 cm in height. Use directed spray with drop nozzles if corn is beyond 30 cm. **Do not** apply between 15 to 30 cm corn height. **Do not** cultivate for 2 weeks following application.

Weeds

Apply in the 2 to 3 leaf stage when actively growing.

7. Application Considerations

Susceptible crops include grapes, tomatoes, sunflowers, beans, soybeans, turnips, cauliflower and cabbages, as well as many other field vegetable, ornamental and fruit crops. If susceptible plants are growing within a distance of 400 m, spray only when there is a light breeze away from the susceptible plants.

Apply when air temperature is between 10 and 25 C to avoid temperature stress on target plant species. **Do not** apply when there is a risk of severe fall in night temperature.

Note: Crops growing under stress from adverse environmental conditions such as excess moisture, drought, disease, etc. may suffer a further setback and exhibit more pronounced injury symptoms after application.

Do not apply on freshly seeded grasses and pastures until established. There is a possibility that plants poisonous to livestock will appear more palatable and could be grazed more readily after treatment (e.g. tansy ragwort, water hemlock, poison hemlock, death camas). Suitable precautions should be taken when such plants are present. Livestock should not be allowed to graze the treated area until poisonous plants have been removed, are dead or have resumed abnormal growth habit.

8. Environmental Considerations

Avoid spraying when winds are gusty or in excess of 8 km/h and moving towards sensitive crops. Leave an adequate buffer zone between treatment areas and sensitive plants. **Do not** contaminate streams, rivers, lakes, ponds, wetlands, sloughs, irrigation water, vegetated ditch banks, and water used by livestock or for domestic purposes. **Do not** apply within 15 m of a wetland area or any of the water bodies listed above.

Effects of Rainfall

Do not spray if rain is expected within 4 hours.

Movement in Soil

Relatively mobile in the soil.

9. Grazing And Cropping Restrictions

Do not permit lactating dairy animals to graze fields within 7 days after application.

Do not harvest forage or cut for hay within 30 days after application.

Withdraw meat animals from treated fields at least 3 days before slaughter.

Re-cropping

No restrictions.

DYVEL (*dicamba plus MCPA K salt*)

HERBICIDE GROUP - 4

1. Formulations

solution - dicamba + MCPA K salt (84 + 336 g/L).

2. Registered Mixes

Horizon, Everest on spring wheat in the Peace River Region Only.

3. Crops

spring wheat, durum wheat, winter wheat, barley, oats.

Underseeding

Legume underseeding not recommended.

4. Weeds Controlled

annual smartweeds, burdock, corn spurry (2-3 leaf), cocklebur, cow cockle (2-3 leaf), flixweed, hemp-nettle(2-3 leaf), kochia, lamb's-quarters, mustard (Indian, wild, tumble, wormseed, ball, hare's-ear), prostrate pigweed, ragweed (common, false, giant), redroot pigweed, Russian pigweed, Russian thistle, shepherd's-purse, stinkweed, tartary buckwheat, volunteer canola (2-4 leaf), wild buckwheat, wild radish.

Additional weeds controlled in a tank mix with Horizon: wild oats, green and yellow foxtail.

Additional weeds controlled in a tank mix with Everest: wild oats, green foxtail.

5. Weeds Suppressed

cleavers, Canada thistle and perennial sowthistle (top-growth)

6. When Used

Crop

barley, spring wheat, oats: apply when grain is in the 2 to 5 leaf stage. **winter wheat:** apply in the spring when winter wheat is 15 to 25 cm tall or before shot-blade stage.

Weeds

Apply in the 2 to 3 leaf stage unless indicated above in WEEDS CONTROLLED.

7. Application Considerations

Apply when air temperature is between 10 and 25 C to avoid temperature stress on target plant species. **Do not** apply when there is a risk of severe fall in night temperature.

Note: Crops growing under stress from adverse environmental conditions such as excess moisture,

drought, disease, etc. may suffer a further setback and exhibit more pronounced injury symptoms after application.

8. Environmental Considerations

Avoid spraying when winds are gusty or in excess of 8 km/h and moving towards sensitive crops. Leave an adequate buffer zone between treatment areas and sensitive plants. **Do not** contaminate streams, rivers, lakes, ponds, wetlands, sloughs, irrigation water, vegetated ditch banks, and water used by livestock or for domestic purposes. **Do not** apply within 15 m of a wetland area or any of the water bodies listed above.

Effects of Rainfall

Do not spray if rain is expected within 4 hours.

Movement in Soil

Very little movement occurs.

9. Grazing And Cropping Restrictions

Do not harvest crop for 60 days after application. Allow 30 days between application of and grazing or cutting of cereal crop for hay.

Re-cropping

No restrictions.

ECLIPSE II (clopyralid plus glyphosate)

HERBICIDE GROUP - 4,9

1. Formulation

A co-package of clopyralid (360 g/L) plus glyphosate (480 g/L).

2. Registered Mixes

None.

3. Crops

glyphosate tolerant canola varieties only.

4. Weeds Controlled

Grassy weeds

green foxtail, volunteer barley, volunteer wheat, wild oats.

Broadleaved weeds

chickweed, cleavers, corn spurry, cow cockle, hemp-nettle, kochia, lady's-thumb, lamb's-quarters, redroot pigweed, Russian thistle, shepherd's-purse, smartweed, stinkweed, night-flowering catchfly, volunteer canola (non-glyphosate tolerant), wild buckwheat, wild mustard, wild tomato.

5. Weeds Suppressed

quackgrass, Canada thistle, perennial sowthistle (season-long top growth); dandelion <15 cm diameter (season-long top growth), dandelion >15 cm diameter (suppression).

6. When Used

Crop

Apply at the 2 to no later than the 6 leaf stage of glyphosate tolerant canola only.

7. Application Considerations

Always use Pedigreed (Certified) glyphosate tolerant canola seed. Non-glyphosate tolerant canola varieties will be damaged or destroyed by this treatment. **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.

Some short-term, visual yellowing may occur if 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.

8. Environmental Considerations

Do not use this tank mix in the following areas: standing or flowing water, the inner banks or bottoms of irrigation ditches; in areas where surface water can run off to adjacent croplands either planted or to be planted to sensitive crops.

Residues of the herbicide tank-mix occurring in the straw may be harmful to susceptible plants; **Do not** use straw or crop residue from treated crops for composting or mulching susceptible broadleaved crops. If the straw or crop residue is used for animal

bedding or feed, return the manure to fields to be planted to clopyralid tolerant crops such as wheat, barley, oats, rye, forage grasses, canola or flax. **Do not** grow susceptible crops such as peas, beans, lentils, potatoes, sunflowers or other sensitive crops on land that has been mulched with straw containing clopyralid residues within the last 12 months.

Effects of Rainfall

Heavy rainfall immediately after application may wash the chemical off the foliage. **Do not** apply if rainfall is forecast for the time of application.

Movement in Soil

Clopyralid is somewhat soluble in water but generally not mobile in soil under prairie type conditions.

9. Grazing And Cropping Restrictions

Do not graze for at least 3 days following application.

Re-cropping

Treated fields can be seeded the following year to wheat, oats, barley, rye (not underseeded with legumes, clover or alfalfa), forage grasses, flax, canola, mustard, field peas, or can be summerfallowed. Seed only those crops listed in the year following treatment. **Do not** seed to field peas for at least 10 months following treatment. Very dry soil conditions following application can result in a risk of injury to field peas grown in rotation. If severe drought conditions are experienced during the months of June to August inclusive in the year of application, delay seeding field peas an additional 12 months (total 22 months following application).

EDGE (*ethalfluralin*)

HERBICIDE GROUP - 3

1. Formulations

Edge granular (5%)

2. Registered Mixes

None.

3. Crops

canola, triazine tolerant canola, field peas, alfalfa establishment (for seed production only).

4. Weeds Controlled

Grassy weeds

barnyardgrass, crabgrass, fall panicum, giant foxtail, green foxtail*, Johnsongrass (seedling), witchgrass, yellow foxtail.

* Edge will not control trifluralin tolerant green foxtail.

Broadleaved weeds

blueweed, chickweed, corn spurry, cow cockle, kochia, lamb's-quarters, prostrate pigweed, purslane, redroot pigweed, wild buckwheat.

5. Weeds Suppressed

cleavers, hemp-nettle, lady's-thumb, nightshade, Russian thistle, volunteer barley, volunteer wheat, wild oats

6. When Used

Spring application

Cultivate to destroy existing weeds and apply in the spring prior to planting the crop.

Fall application

Apply between September and soil freeze-up.

7. Application Considerations

Incorporation

To be effective Edge must be incorporated into the soil within 24 hours of application. A second incorporation at right angle to the first **MUST** be delayed a minimum of 3 days.

Spring Application

Apply when soils are in good working condition. Ensure that the early season flush of weeds is killed by either the first or second incorporation. Seed into a weed-free seedbed.

Fall Application:

It is recommended that both incorporations be completed in the fall. For optimum weed control, pre-work the field lightly early the next spring to promote germination of weeds and to allow the green growth of tolerant weeds to develop. Use a 5-8 cm deep cultivation with a Vibrashank type cultivator or disc prior to seeding to destroy existing green growth. Seed into a weed-free seedbed.

8. Environmental Considerations

Do not apply to wet soils or soils that are in poor working condition. **Do not** apply on peat or muck soils or soil that contains more than 15% or less than 2% organic matter. **Do not** apply to fields spread with manure within the last 12 months. Ensure manure has been thoroughly disintegrated and mixed into the soil. Application on eroded knolls or grey wooded soils with highly variable texture and organic matter may result in reduced crop stand, delayed development, or reduced yield in either the treated or rotational crop.

Effect of Rainfall

Rainfall has no effect on activity once incorporated into the soil.

Movement in Soil

Not leached in the soil.

9. Grazing and Cropping Restrictions

Do not graze treated crops or cut for hay; there are not sufficient data to support such use.

Re-cropping

Applied and incorporated according to label directions, Edge will not harm the treated crop or rotational crops. As a precaution, very sensitive crops such as oats, sugarbeets, or small seeded grasses such as timothy, canaryseed and creeping red fescue should not be grown in rotation following a crop treated with Edge. Over-application caused by overlapping, improper calibration or uneven application may reduce crop stands in the treated crop or rotational crop. Drought conditions in the year the treated crop was grown may result in higher than normal levels of Edge in the soil at the end of the growing season. To reduce the possibility of injury to rotational crops, such as wheat, seed shallow into a warm, moist seedbed using recommended agronomic practices which will promote rapid germination and emergence of the rotational crop. Avoid direct seeding (zero till) and seeding into loose seedbeds. As a precaution, do not seed wheat as a rotational crop on land that has received ethalfuralin or trifluralin at oilseed/special crop/barley rate for two consecutive crops.

EMBUTOX, CALIBER, COBUTOX (2,4-DB)

HERBICIDE GROUP 4

1. Formulations

emulsifiable concentrate (625 g/L).

2. Registered Mixes

May be tank mixed with MCPA amine for improved control of narrow-leaved hawks-beard and wild mustard in seedling alfalfa and bird's-foot trefoil (this may increase crop stunting). May be tank mixed with other products. Consult label of potential tank mix partner.

3. Crops

seedling alfalfa, bird's-foot trefoil, clovers, spring wheat, barley, oats, field corn, pastures, seedling grasses for forage (smooth bromegrass, creeping red fescue, meadow fescue, tall fescue, orchardgrass, timothy, crested wheatgrass, intermediate wheatgrass, tall wheatgrass, streambank wheatgrass).

Underseeding

Can be used direct or underseeded.

4. Weeds Controlled

Controlled with 1.75 L/ha: ball mustard, lamb's-quarters, ragweed, redroot pigweed, shepherd's-purse, stinkweed, wild mustard (up to 4-leaf), wormseed mustard.

Controlled with 2.25 to 2.75 L/ha: bull thistle, chicory, curled dock, field bindweed, plantain, oak-leaved goosefoot, wild buckwheat, wild radish, yellow rocket. Use high rate where tolerated by the crop.

Moderately susceptible to 2.75 L/ha: dandelion, green smartweed, horsetail, lady's-thumb,

5. Weeds Suppressed

dandelion, Canada thistle, green smartweed, horsetail, lady's-thumb, perennial sowthistle.

6. When Used

Crop

Cereals - after the crop has 5 fully expanded leaves but before the early flag leaf stage. **Field**

corn - after crop is 40 cm high but before the beginning of tasselling. **Pastures (containing forage legumes)** - after cutting or grazing, and before regrowth reaches 7 cm. **Seedling alfalfa and bird's-foot trefoil (direct or underseeded)** 1 to 4 trifoliate leaf stage. **Seedling clover (direct or underseeded)** - after the first trifoliate leaf stage. **Do not** spray sweetclover. Red clover may be damaged. Tropotox Plus or Topside is recommended for pure stands of red clover. **Seedling grasses** - 2 to 4 leaf stage.

Weeds

Spray when most weeds are in the seedling stage (usually at or before the 2 leaf stage). Resistance increases with age.

7. Application Considerations

Damage to forage legumes (particularly to established alfalfa) may occur and increase in severity the longer the treatment is delayed beyond the recommended stage.

8. Environmental Considerations

This product contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application by observing appropriate buffer zones between treatment areas and aquatic systems and significant wildlife habitat. **Do not** contaminate these systems through direct application, disposal of waste or cleaning equipment.

Effects of Rainfall

Rainfall before the foliage has dried from the spraying may decrease activity.

Movement in Soil

Not applicable.

9. Grazing And Cropping Restrictions

Do not graze or cut treated crop for forage until 30 days after application. No re-cropping restrictions are specified.

EPTAM (EPTC)

HERBICIDE GROUP - 8

1. Formulation

emulsifiable concentrate (800 g/L)

2. Registered Mixes

dry bulk fertilizers (except nitrogen) can be impregnated with Eptam for spring application in listed crops.

3. Crops

new seedings (alfalfa, bird's-foot trefoil), seed production (cicer milkvetch, sweetclover).

Underseeding

Not recommended - except for alfalfa or trefoil underseeded with flax.

4. Weeds Controlled

Grassy Weeds

annual bluegrass, annual ryegrass, barnyardgrass, foxtails (green, yellow), fall panicum, crabgrass, goosegrass, volunteer grains, wild oats, quackgrass*, yellow nutsedge*.

Broadleaved Weeds

common chickweed, corn spurry, henbit, lamb's-quarters, hairy nightshade, prostrate pigweed, purslane, redroot pigweed, tumble pigweed.

* **NOTE:** Refer to the label for special instructions for perennial weed control.

5. Weeds Suppressed

none.

6. When Used

Crops

Just prior to planting. Eptam is not to be used if you are seeding a cereal or grass nurse crop.

Weeds

Pre-plant incorporated.

7. Application Considerations

Eptam must be incorporated into the soil immediately to prevent loss of the herbicide. Whenever possible, application and incorporation should be done in the same operation. A second incorporation should be done at right angles to the first. As Eptam is not persistent in the soil weeds germinating later in the season may not be controlled.

8. Environmental Considerations

Effects of Rainfall

Very soluble in water and excessive moisture may leach Eptam from the surface.

Movement in Soil

Moves readily in the soil.

9. Grazing And Cropping Restrictions

Do not graze or harvest for livestock feed in the year of treatment. There are no restrictions on succeeding crops.

EQUINOX (*tepraloxydim*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 1

1. Formulation

emulsifiable concentrate (200 g/L)

2. Registered Mixes

no registered mixes for field peas. Apply with either Merge or Dash adjuvant.

3. Crops

field peas.

4. Weeds Controlled

Grassy weeds

green foxtail, volunteer wheat, volunteer barley, quackgrass, wild oats.

5. Weeds Suppressed

Competition from quackgrass is usually eliminated for 6 to 8 weeks.

6. When Used

Crop

Apply to field peas from emergence to the 9 leaf stage.

Weeds

Apply when annual grasses are in the 1 to 6 leaf stage or up to 2 tillers. Apply to actively growing quackgrass in the 3 to 6 leaf stage prior to tillering (6 to 15 cm high).

7. Application Considerations

Injury to grass, cereal or corn crops and turf may occur if applied directly onto, or is allowed to drift onto, these susceptible crops. **Do not** make applications to grasses or crops under stress such as stress due to lack of moisture, hail damage, flooding, herbicide injury, mechanical injury, or widely fluctuating temperatures, as unsatisfactory control will probably result.

8. Environmental Considerations

Equinox contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. **Do not** contaminate these systems through direct application, disposal of wastes or cleaning equipment.

Effects of Rainfall

A rain-free period of 1 hour is required.

Movement in Soil

No appreciable leaching.

9. Grazing And Cropping Restrictions

Dry peas may be used for grazing provided the 60 day pre-harvest interval is followed.

Re-cropping

A general plant back interval of 40 days is required. Allow a minimum of 14 days between application and the re-planting of cereal or grass crops. Cultivating to a minimum depth of 10 cm is recommended 7 days prior to seeding.

ERADICANE 8-E (EPTC + crop protectant)

HERBICIDE GROUP - 8

1. Formulations

emulsifiable concentrate (800 g/L).

2. Registered Mixes

Eradicane may be applied in liquid fertilizer or impregnated on dry bulk fertilizers (except nitrate fertilizers).

3. Crops

field corn.

4. Weeds Controlled

Grassy Weeds

annual bluegrass, annual ryegrass, barnyardgrass, foxtails (green, yellow), fall panicum, crabgrass, goosegrass, volunteer grains, wild oats, quackgrass*, yellow nutsedge*.

Broadleaved Weeds

common chickweed, corn spurry, henbit, lamb's-quarters, hairy nightshade, prostrate pigweed, purslane, redroot pigweed, tumble pigweed.

* **NOTE:** Refer to the label for special instructions for Perennial Weed Control.

5. Weeds Suppressed

wild proso millet.

6. When Used

Apply and incorporate prior to planting corn. Seeding should be done as soon as possible to obtain a maximum period of weed control. Plant seed to a maximum depth of 5 cm. One cultivation should be made when plants are 7.5 to 15 cm tall. Use on mineral soils only.

7. Application Considerations

Incorporation

Incorporate immediately (within minutes) by rotovating, cultivating or double discing, preferably in two different directions. Rotovators should be set to cut to a depth of 5 to 7.5 cm. Tandem discs

should be set to cut to a depth of 10 to 15 cm operated at 7 to 10 km/h followed by a spiketooth harrow or some other leveling device which extends beyond the ends of the discs.

8. Environmental Considerations

Excessive incorporation may cause erosion on some soils. This product contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. **Do not** contaminate these systems through direct application, disposal of waste or cleaning equipment.

Effects of Rainfall

Very soluble in water and excessive moisture may leach the herbicide from the surface.

Movement in Soil

Can move readily in the soil.

9. Grazing And Cropping Restrictions

Do not graze treated immature crops (before ear emergence), or cut for fodder; sufficient data are not available to support such use.

Re-cropping

No restrictions.

ESTAPROP, ESTAPROP PLUS (2,4-D plus dichlorprop)

See page: 154

EVEREST (flucarbazone sodium)

For Use in the Peace River Region Only

HERBICIDE GROUP - 2

1. Formulation

water dispersible granule (70%).

2. Registered Mixes

spring wheat

2,4-D amine or ester, Ally plus 2,4-D amine or ester, Attain, Buctril M, Curtail M, Dyvel, Dyvel DSp, Estaprop, Dichlorprop-D, Express Pack, Frontline, Frontline 2,4-D, MCPA amine or ester, Pardner, Prestige, Refine Extra plus 2,4-D amine or ester, Target, Spectrum, Thumper

durum wheat

2,4-D amine or ester, Frontline, Spectrum

Consult the label of the tank-mix partner for a complete list of weeds controlled, rates, timing, re-cropping restrictions, grazing interval restrictions, directions for use and precautions. Apply with a surfactant.

3. Crops

spring wheat, durum wheat.

Do not treat wheat underseeded to legumes.

4. Weeds Controlled

Grassy weeds

green foxtail, volunteer oats, wild oats.

Broadleaved weeds

green smartweed, redroot pigweed, shepherd's-purse, stinkweed, volunteer canola, wild mustard.

5. Weeds Suppressed

None.

6. When Used

Crop

Apply to spring and durum wheat with 1 leaf to 6 total leaves (1 leaf to 4 leaves on main stem, plus 2 tillers).

Weeds

Apply to grassy weeds with 1 leaf to 6 total leaves (1 leaf to 4 leaves on main stem, plus 2 tillers); apply to broadleaved weeds in the 2 to 6 leaf stage (except stinkweed - apply in the 2 to 9 leaf stage).

7. Application Considerations

Do not mix, load or clean spray equipment within 10 metres of well-heads or aquatic systems, including marshes, ponds, ditches, streams, lakes. **Do not** apply during periods of dead calm, when winds are gusty or when wind speed is greater than 15 km/hr at 2 m high above ground at the site of application.

8. Environmental Considerations

A buffer zone of 20 metres is required between the downwind edge of the boom and the closest edge of sensitive terrestrial habitats including forested areas, shelterbelts, woodlots, hedgerows, and shrublands. A buffer zone of 35 metres is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats including sloughs, coulees, ponds, prairie potholes, lakes, rivers, streams, wetlands, and wildlife habitat at the edge of these bodies of water.

Effects of Rainfall

Do not apply if it is raining or if rainfall is expected within one (1) hour after application.

Movement in Soil

No appreciable leaching.

9. Grazing And Cropping Restrictions

Do not feed or graze treated fields. Wheat grain or straw from treated fields may be fed to livestock. Observe minimum interval to harvest of 80 days after treatment.

Re-cropping

The following crops may be planted 11 months after application: **Grey-Wooded soils:** spring wheat, barley, canola, field peas*. **Black soils:** spring wheat, barley, canola (all varieties), field peas*, field bean, flax, durum wheat. **Dark Brown soils:** spring wheat, barley, canola, field peas*, flax, durum wheat. **Brown soils:** spring wheat.

* Field peas may be grown the year following application in fields where precipitation has been normal or above normal (10 year average) during the growing season, and where organic matter content is above 4% and pH below 7.5.

EXPRESS PACK (tribenuron methyl + 2,4-D L.V. ester)

For Use in the Peace River Region Only

HERBICIDE GROUP - 2, 4

1. Formulation

Express Herbicide; tribenuron methyl Dry flowable (75%) packaged with 2,4-D low volatile ester (isooctyl ester) (660 gr/L).

2. Registered Mixes

Express must be applied with 2,4-D. **Do not** use Express alone.

The Express Pack mix may be tank mixed with: Assert and Puma Super in spring wheat (including durum) and barley; Banvel II in spring wheat (excluding durum) and barley for control of sulfonylurea resistant kochia.

3. Crops

wheat (spring or durum), barley, summerfallow (stinkweed and flixweed).

4. Weeds Controlled

cow cockle, flixweed*, kochia (2-10 leaf), lamb's-quarters, prickly lettuce, ball mustard, hare's-ear mustard, Indian mustard, tumble mustard, wormseed mustard, wild mustard, narrow-leaved hawk's-beard*, redroot pigweed, Russian pigweed, Russian thistle, shepherd's-purse*, stinkweed*, sunflower (annual), sweetclover, thyme-leaved spurge wild radish* fall rosettes and spring seedlings

5. Weeds Suppressed

Canada thistle, wild buckwheat.

6. When Used

Crop

Apply the tank-mix from the full 3 leaf stage to just before the flag leaf (shot blade) stage of wheat (including durum) and barley, prior to head emergence. **Do not** apply after head has emerged.

Weeds

For best results apply to emerged actively growing weeds that are less than 10 cm tall or across, and before the crop canopy closes. Weeds that emerge after treatment will not be controlled.

Wild buckwheat

Apply to actively growing wild buckwheat in the 1-3 leaf stage. Under dry conditions suppression may be reduced. Plants larger than the 3 leaf stage may regrow after treatment.

Summerfallow

Apply to stinkweed, flixweed, shepherd's-purse and narrow-leaved hawk's-beard in the spring after emergence, up to the early flowering stage. Only weeds that have emerged at the time of application will be controlled.

7. Application Considerations

Do not apply to irrigated land where tail water will be used to irrigate cropland. **Do not** apply, drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. **Do not** use on highly variable soils that have large gravelly or sandy areas, eroded knolls or calcium deposits. Express applied to wheat, durum or barley that is severely stressed may result in crop injury, grade or yield loss.

8. Environmental Considerations

This tank mixture contains a petroleum distillate, which is moderately to highly toxic to aquatic organisms.

Avoid contamination of aquatic systems during application. **Do not** contaminate these systems through direct application, disposal of waste or cleaning equipment.

Effects of Rainfall

If rain occurs soon after application control may be reduced. At least 4-6 hours of dry weather are needed to allow Express Pack Tank Mix to be absorbed by weed foliage.

Movement in the Soil

Very little movement in the soil.

9. Grazing And Cropping Restrictions

Do not permit lactating dairy animals to graze fields within 7 days after application. **Do not** harvest forage or cut hay within 30 days after application. Withdraw meat animals from treated fields at least 3 days before slaughter.

Re-cropping

A minimum re-cropping interval of 2 months should be left between the application of this product and seeding of the next crop. After 2 months, canola, flax, lentils and alfalfa can be seeded.

EXPRESS TOSS-N-GO, EXPRESS SG (*tribenuron methyl*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 2

1. Formulation

Express Toss-N-Go - dry flowable- tribenuron methyl (75%).

Express SG - soluble granules (50%).

2. Registered Mixes

glyphosate formulations: Roundup Original, Roundup Transorb HC, Roundup WeatherMax, Roundup Dry, Touchdown 600, Touchdown IQ.

Tank mix with 2,4-D ester in summerfallow for control of fall rosettes and spring seedlings of stinkweed and flixweed.

3. Crops

Pre-seeding to wheat (spring or durum) and barley; summerfallow. **Do not** underseed to legumes.

4. Weeds Controlled

Grassy weeds

downy brome, giant foxtail, green foxtail, volunteer barley, volunteer wheat, wild oats.

Broadleaved weeds

Canada fleabane, canola, cow cockle, dandelion (topgrowth), flixweed, hemp-nettle, kochia, lady's-thumb, lamb's-quarters, narrow-leaved hawkbeard, ragweed, redroot pigweed, Russian thistle, stinkweed, volunteer flax, wild buckwheat, wild mustard.

5. Weeds Suppressed

Canada thistle

6. When Used

Crop

Apply at least 24 hours prior to seeding crop.

Weeds

Timing is dependent on formulation and rate of glyphosate tank mix partner used. Refer to Express Toss-N-Go or SG label and label of the specific glyphosate formulation chosen.

7. Application Considerations

Control of weeds growing in wheel tracks may be reduced if applied under dry, dusty conditions.

8. Environmental Considerations

Do not use on highly variable soils that have large gravelly or sandy areas, eroded knolls or calcium deposits. Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs, or dry slough borders, or woodlots, must be avoided. Leave a 15 metre buffer zone between the last spray swath and the edge of any of these habitats.

Effects of Rainfall

If rain occurs soon after application control may be reduced. 4-6 hours of dry weather are needed to allow the herbicide to be absorbed by weed foliage.

Movement in the Soil

Very little movement in the soil.

9. Grazing And Cropping Restrictions

Re-cropping

A minimum re-cropping interval of 2 months should be left between the application of this product and seeding of the next crop. After 2 months, canola, flax, lentils and alfalfa can be seeded.

FACTOR, FACTOR 540 (glyphosate)

See page: 171

FORTRESS (*trallate plus trifluralin*)

HERBICIDE GROUP 8,3

1. Formulations

granular; 10% triallate plus 4% trifluralin.

2. Registered Mixes

none.

3. Crops

wheat (spring, durum), barley, canola.

4. Weeds Controlled

green and yellow foxtail, wild oats.

5. Weeds Suppressed

lamb's-quarters, kochia, redroot pigweed, Russian thistle and wild buckwheat.

6. When Used

Fall

Apply in fall, after September 15 until freeze-up. Applications made before September 15 may result in reduced control. **Do not** apply pre-plant with wheat in soils with less than 2% organic matter. Where erosion may be a problem, maximize crop residue cover by using only one tillage incorporation.

Spring

Pre-plant incorporated on barley, spring and durum wheat and rapeseed (including canola). **Do not** apply pre-plant with wheat in soils with 0 - 4% organic matter.

7. Application Considerations

Reduce trash cover to an acceptable level before application as too much trash can make uniform incorporation difficult.

Incorporation

Make first incorporation within 24 hours; second incorporation in the fall or spring. Use double disc or light duty cultivator plus harrows. Harrowing does not provide incorporation if compacted soil prevents penetration of harrow teeth or if trash accumulates in harrow section or if harrows bounce.

Fall Surface Application

Where fields are prone to water and/or wind erosion, and fall tillage is therefore undesirable, fall surface applications should be made after October 15 or within three weeks of freeze-up (average soil temperature at 5 cm depth should be 4°C or less). Fall surface application should be made to standing stubble, chemical fallow or summerfallow fields in a state of low erodibility. Avoid smooth, hard packed soil conditions in summerfallow that may allow granules to drift. Surface applications should not be made to fields covered in snow or excessive crop residue, which will not allow granules to contact soil.

Do not apply Fortress for wheat on land that has been treated with trifluralin since June 1 of the previous year. Substantial thinning in wheat and barley following treatment has been known to occur especially under conditions of heavy rainfall and/or cold weather after application and before crop emergence. Flax, mustard and canola (rapeseed) can be seeded in the treated layer. Barley and wheat are more sensitive and should be planted 6.0-7.5 cm; wheat must be seeded at least 1.0 cm below treated layer. **Do not** seed deeper than 7.5 cm.

To ensure an even crop stand, increase the usual seeding rate of barley and wheat by 10%.

8. Environmental Considerations

Effects of Rainfall

Moisture is required for activation. Rainfall of at least 1.5 cm within 2 weeks of spring application is required to ensure maximum performance.

Movement in Soil

Negligible.

9. Grazing And Cropping Restrictions

Do not graze the treated crop or cut for hay; there is not sufficient data to support such use.

Re-cropping

Under normal conditions Fortress carryover will not harm crops grown in rotation. As a precaution, domestic oats, sugarbeets and small seeded annual grasses such as timothy, canaryseed and creeping red fescue should not be grown in rotation following Fortress treated crop.

FRONTLINE 2,4-D *(florasulam plus 2,4-D ester)*

For Use in the Peace River Region Only

HERBICIDE GROUP - 2,4

1. Formulation

tank mix containing: florasulam suspension concentrate (50 g/L) plus 2,4-D ester emulsifiable concentrate (564 g/L).

2. Registered Mixes

Assert 300 SC, Axial, Puma 120 Super, Everest. Refer to Frontline 2,4-D label and label of tank mix partner for instructions on registered crops, weeds controlled, rates and application considerations.

3. Crops

spring wheat, durum wheat.

Do not underseed to legumes.

4. Weeds Controlled

Broadleaved weeds

annual sowthistle, annual sunflower, ball mustard, bluebur, chickweed, cleavers, cocklebur, common burdock, dandelion (seedlings and overwintered rosettes), flixweed, kochia*, lady's-thumb, lamb's-quarters, narrow-leaved hawk's-beard**, prickly lettuce, plantain, ragweed, Russian thistle, redroot pigweed, shepherd's-purse, smartweed, stinkweed, tartary buckwheat, vetch, volunteer canola, wild buckwheat, wild mustard, wild radish.

* Up to 5 cm in height

** 1-2 leaf stage

5. Weeds Suppressed

hemp-nettle, Canada thistle and perennial sowthistle (topgrowth).

6. When Used

Crop

Apply to actively growing wheat from the 3 leaf expanded to 6 leaf stage.

Weeds

Apply when weeds are actively growing in the 2 to 4 leaf stage. Only weeds emerged at the time of treatment will be controlled.

7. Application Considerations

Extreme growing conditions such as drought or near freezing temperature prior to, at or following time of application may reduce weed control and increase the risk of crop injury at all stages of growth.

Do not apply tank-mix directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes.

8. Environmental Considerations

Frontline 2,4-D contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. A buffer zone of 30 metres is required between the downwind edge of the boom and the closest edge of sensitive terrestrial habitats including forested areas, shelterbelts, woodlots, hedgerows, and shrublands. A buffer zone of 15 metres is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats including sloughs, ponds, prairie potholes, lakes, rivers, streams, wetlands and wildlife habitats at the edge of these bodies of water.

Effects of Rainfall

Do not apply if rain is forecast within 2 hours of application.

Movement in Soil

Has potential to leach. **Do not** apply excessive irrigation. **Do not** use in successive years on the same site.

9. Grazing And Cropping Restrictions

Do not permit lactating dairy animals to graze fields within 7 days after application. **Do not** harvest the treated mature crop within 60 days after application.

Re-cropping

Previously treated fields can be seeded the following year to barley, canola, oats, peas, or wheat or fields can be summerfallowed.

FRONTLINE (*florasulam plus MCPA ester*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 2,4

1. Formulation

Tank mix containing: florasulam suspension concentrate (50 g/L) plus MCPA ester emulsifiable concentrate (500 g/L).

2. Registered Mixes

Assert 300 SC, Axial, Puma 120 Super, Everest, Horizon. **Do not** apply these tank mixes to oats. Refer to Frontline label and label of tank mix partner for instructions on registered crops, weeds controlled, rates and application considerations.

3. Crops

spring wheat (including durum), barley and oats.

Do not underseed to legumes.

4. Weeds Controlled

Broadleaved weeds

annual sunflower*, ball mustard, burdock*, chickweed, cleavers, flaxweed (2 to 4 leaf), hemp-nettle, kochia*, lamb's-quarters, prickly lettuce, ragweed, redroot pigweed**, shepherd's-purse, stinkweed, Russian pigweed*, volunteer canola, wild buckwheat, wild mustard.

* (see WEEDS SUPPRESSED)

5. Weeds Suppressed

annual sowthistle, Canada thistle (topgrowth)***, dandelion (seedlings and overwintered rosettes less than 15 cm)**, perennial sowthistle, plantain, stork's-bill**.

* Up to the 4 leaf stage

** Optimum control can be achieved with the addition of 140 ml MCPA LV ester 500.

6. When Used

Crop

Apply to actively growing wheat, barley, and oats from the 2 to 6 leaf stage.

Weeds

Apply when weeds are actively growing. Only weeds emerged at the time of treatment will be controlled. Best results are obtained from applications made to seedling weeds.

7. Application Considerations

MUST be applied early post-emergence to the main flush of actively growing broadleaved weeds. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed.

8. Environmental Considerations

Frontline contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. A buffer zone of 30 metres is required between the downwind edge of the boom and the closest edge of sensitive terrestrial habitats including forested areas, shelterbelts, woodlots, hedgerows, and shrublands. A buffer zone of 5 metres is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats including sloughs, ponds, prairie potholes, lakes, rivers, streams, wetlands and wildlife habitats at the edge of these bodies of water.

Effects of Rainfall

Do not apply if rain is forecast at time of application as the herbicide may be washed off the leaves.

Movement in Soil

This product has potential to leach. **Do not** apply excessive irrigation. **Do not** use in successive years at the same site.

9. Grazing And Cropping Restrictions

Do not cut the treated crop for hay or graze treated crop within 7 days after application. Do not harvest the treated crop within 60 days after application.

Re-cropping

Previously treated fields can be seeded the following year to barley, canola, oats, peas, or wheat or fields can be summerfallowed.

Fusion (*fenoxaprop-p-ethyl + fluazifop-p-butyl*)

For Use in the Peace River Region Only

HERBICIDE GROUP 1

1. Formulations

Component #1 (fenoxaprop-p-ethyl) emulsifiable concentrate (80.5 g/L).

Component #2 (fluazifop-p-butyl) emulsifiable concentrate (125 g/L).

2. Registered Mixes

Lontrel (canola and triazine tolerant canola only).

Muster (Argentine canola varieties only).

3. Crops

canola and triazine tolerant canola, field peas.

4. Weeds Controlled

Fusion alone controls: wild oats, green foxtail, volunteer wheat, volunteer barley, Persian dandel, barnyardgrass

Canola and triazine tolerant canola

Fusion plus Lontrel controls above weeds plus: wild buckwheat, scentless chamomile, Canada thistle (seasonal control) perennial sowthistle (top-growth). Fusion plus Liberty (Liberty Link labeled varieties) for Liberty labeled weeds, volunteer barley and enhanced wild oat control.

Argentine canola varieties only

Fusion plus Muster to control wild mustard, stinkweed and Muster labeled weeds.

5. Weeds Suppressed

None.

6. When Used

Crop

Do not apply after the fifth leaf stage of canola.

Weeds

Apply to emerged, young, actively growing weeds. Weeds that emerge after application will not be controlled.

Apply when the annual grassy weeds are in the 1 to 6 leaf stage of growth.

7. Application Considerations

Do not apply to crop that is stressed by severe weather conditions, frost, low fertility, drought, low humidity, water saturated soil, disease or insect damage as crop injury and reduced weed control may result.

A time interval of 4 days prior to application, or 4 days after application of Fusion is required before any other pesticide can be applied, unless registered as a tank mix with the Fusion mix.

WARNING: Experimental feeding studies in rats have demonstrated that the active ingredient in Component #2 can produce birth defects and other adverse effects in the developing fetus of rats. Women capable of bearing children should be particularly careful when handling this product. Occupational exposure to this product will be reduced by strict adherence to the handling precautions and use directions provided.

8. Environmental Considerations

This product is TOXIC TO FISH.

Do not apply within 15 metres of a body of water or wetland area.

Do not contaminate water supplies, ponds, lakes, rivers, streams and irrigation ditches by direct application, spray drift or when cleaning and rinsing spray equipment or containers.

Do not apply to land where tail water will be used to irrigate cropland.

Effects of Rainfall

No effect 2 hours after application.

Movement in Soil

No soil movement. This product will not leach in the soil.

9. Grazing And Cropping Restrictions

Do **not** graze treated fields prior to harvest. **Pre-Harvest Interval:** Canola - 80 days. Field peas - 75 days.

GLYFOS (*glyphosate*)

See page: 171

Glyphosate

Includes products such as: CREDIT, FACTOR, FACTOR 540, GLYFOS, MAVERICK II, RENEGADE, ROUNDUP ORIGINAL, ROUNDUP WEATHERMAX, ROUNDUP TRANSORB HC, ROUNDUP ULTRA 2, TOUCHDOWN iQ, VANTAGE PLUS MAX

HERBICIDE GROUP - 9

NOTE: *Glyphosate* is the active ingredient in numerous herbicides marketed under different Trade Names and produced by various manufacturers. **The following information is provided as a generic guide to this active ingredient only. Not all information provided pertains to all glyphosate labels. Refer to specific labels for complete directions on tank mix partners, registered crops, rates, timing, etc.**

1. Formulations

Glyphosate formulations containing:

1. isopropylamine salts - Credit, Factor, Glyfos, Renegade (356 g/L); Maverick II, Vantage Plus Max (480 g/L)
2. potassium salt - Factor 540, Roundup Transorb HC, Roundup Ultra 2, Roundup WeatherMax, (540 g/L)
3. diammonium salt - Touchdown iQ (360 g/L)

2. Registered Mixes

Minimum tillage systems and summerfallow

2,4-D, Banvel II, Buctril M, Dual Magnum, Express, MCPA, Oracle, Pardner.

Glyphosate tolerant canola (Roundup Ready trait)

Lontrel.

Registered surfactants include

Agral 90, AgSurf, Companion, Frigate.

Note: refer to specific labels for registered mixes as not all tank mix partners are registered with all glyphosate formulations and use directions vary between labels.

3. Crops

Non-selective weed control: before planting of all crops; in minimum tillage systems; fall stubble fields; pre-harvest applications in wheat, barley, oats, canola (including glyphosate tolerant varieties), field peas and forages; in pasture renovation; in forage legume and grass establishments; and grasses for seed production (spot treatment); post-emergent in glyphosate tolerant (Roundup Ready gene) canola and corn. **USE PEDIGREED (CERTIFIED) GLYPHOSATE TOLERANT CANOLA AND CORN SEED. CANOLA OR CORN THAT IS NOT DESIGNATED AS GLYPHOSATE TOLERANT WILL BE DAMAGED OR DESTROYED BY THIS TREATMENT.**

4. Weeds Controlled

Non-selective control of most green vegetation contacted. A partial list of weeds controlled includes:

Annual grassy weeds

annual bluegrass, barnyardgrass, crabgrass (large, smooth), downy brome, fall panicum, giant foxtail, green foxtail, Persian dandelion, volunteer barley, volunteer corn, volunteer wheat, wild oats, wild Proso millet, yellow foxtail.

Annual broadleaved weeds

annual sow-thistle, Canada fleabane, chickweed, cleavers, cocklebur, corn spurry, cow cockle, eastern black nightshade, flixweed, green smartweed, hemp-nettle, kochia, lady's-thumb, lamb's-quarters, narrow-leaved hawk's-beard, narrow-leaved

vetch, night-flowering catchfly, Pennsylvania smartweed, prickly lettuce, ragweed (common), redroot pigweed, round-leaved mallow, Russian thistle, shepherd's-purse, smooth pigweed, stinkweed, stork's-bill, velvetleaf, volunteer canola (non-glyphosate tolerant), volunteer flax, wild buckwheat, wild mustard, wild tomato.

Perennial grassy weeds and sedges

Canada bluegrass, common cattail, foxtail barley, Kentucky bluegrass, smooth bromegrass, quackgrass, wire-stemmed muhly, yellow nutsedge.

Perennial broadleaved weeds

absinth wormwood, alfalfa, Canada thistle, curled dock, dandelion, dodder, field bindweed, hemp dogbane, hoary cress, Japanese knotweed, milkweed (common), perennial sowthistle, poison ivy, toadflax.

5. Weeds Suppressed

Some weeds suppressed at low rates.

6. When Used

Crops

Roundup Ready canola

Apply at the 0 to 6 leaf stage. Temporary crop yellowing may be observed in late applications (4 to 6 leaf stage).

Roundup Ready corn

Apply up to and including the 8 leaf stage.

Forage grasses and legumes

Apply prior to emergence.

Forage seed production

Spot treatment for control of perennial weeds at least 20 to 25 cm tall. Treated crop will be killed.

Pre-harvest

To control quackgrass, Canada thistle, milkweed, toadflax, dandelion, perennial sowthistle (season long control) and as an aid in harvest management apply to annual crops when average seed moisture content is less than 30%. **Wheat, barley, oats** should be at hard dough stage (a thumbnail impression remains on the seed). **Canola** pods should be yellow to green and most seeds are

yellow to brown. The majority (75%-80%) of **field pea** pods should be brown. Apply to **forages** at the normal stage for forage harvesting. Apply only during the period 7-14 days (or 3-7 days for forage production) before harvest to ensure best weed control and to maximize harvest-aid benefits. Earlier applications may reduce crop yield and/or quality and may lead to excess glyphosate residues in the crop. Extremely cool, wet and/or dry weather conditions between the time of applications and the anticipated harvest date may slow dry down activity of this product, thereby delaying crop dry down and harvest dates.

Weeds

Apply when **annual weeds** are actively growing. If above 15 cm in height use higher rate; **Canada Thistle** (Bud Stage): at or beyond bud stage of growth; Canada Thistle (Fall rosette): when majority of thistles are in the rosette stage, 15 cm in diameter and at least 5 weeks of growth; **dandelion**: prior to seeding and post-harvest; **field bindweed**: at or beyond full bloom and actively growing (reduced effectiveness may result if treated after full bloom); **quackgrass** (Spring, Summerfallow, Fall stubble): at least 20 cm in height (3-4 leaf stage of growth) and actively growing. Quackgrass can be treated after a mild frost provided there are 3 to 4 green leaves actively growing at the time of application; Quackgrass (Fall-Tilled Ground): delay application in the spring until the majority of quackgrass has 4-5 leaves. This stage usually occurs 1-4 weeks later on fall tilled ground than on undisturbed ground; **alfalfa**: addition of 2,4-D may improve control of established alfalfa stands. Can be applied spring or fall. For spring applications, use lowest labeled rate only and only seed cereal crops (not underseeded to legumes). A 14 day interval between application and planting is required; **other perennials**: early heading or early bud stage.

7. Application Considerations

Do not mix, store or apply glyphosate or spray solution of glyphosate in galvanized steel or unlined steel (except stainless steel) containers or spray tanks. Apply with boom equipment, hand held and high volume equipment, selective wiper and roller applicators or with aerial equipment (**Restricted Use**: pre-harvest application only). Check label for special precautions.

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 activity of this product and delay visual effects of control. Heavy frosts prior to application may reduce control. **Do not** apply after the first damaging frost in the fall.

8. Environmental Considerations

Glyphosate is harmful to aquatic organisms and toxic to aquatic and terrestrial plants. **Do not** apply during periods of dead calm or when winds are gusty. Avoid direct applications to any body of water.

The following buffer zones 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, pastures, rangelands and shrublands), and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, Prairie potholes, creeks, marshes, streams, reservoirs and wetlands): field sprayer application - maintain a 15 metre buffer zone. Field sprayer buffers can be reduced by 70% when using shrouds or 30% when using cones. Aerial application (pre-harvest only) - maintain an aquatic habitat buffer of 25 metres and a 55 metre buffer for terrestrial habitats.

Effects of Rainfall

Rainfall occurring within 60 minutes of treatment may result in reduced weed control.

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.

Movement in Soil

Deactivated on soil contact. Leaching is low.

9. Grazing and Cropping Restrictions

For pre-harvest applications, forages can be grazed or harvested as hay, silage. Allow 3 to 5 days after application prior to grazing or harvesting forages.

Make pre-harvest applications in glyphosate tolerant canola at least 7 days before harvest.

Re-cropping

No restrictions.

GRAMOXONE (*paraquat*)

HERBICIDE GROUP - 22

1. Formulations

Solution with wetting agent (200 g/L).

2. Registered Mixes

Dual II Magnum for conservation tillage in field corn.

3. Crops

shelterbelts, stale seedbed for field crops, conservation tillage corn, established alfalfa (forage), established bird's-foot trefoil (seed production and forage), pasture renovation, non-crop land, pre or post-seeding burndown in: barley, canaryseed, corn, field peas, oats, rye, triticale, wheat.

4. Weeds Controlled

Controls emerged annual grass and broadleaved weed seedlings, and top-growth control of perennial grass and broadleaves. Perennials may require repeat treatment. Annual weeds are generally killed with one application if the weed growth has been completely covered with spray solution.

5. Weeds Suppressed

Most perennial weeds.

6. When Used

Stale Seedbed - prior to crop emergence but after weeds emerge. **Do not** apply later than 3 days before crop emergence.

Established alfalfa - immediately after cutting (within 5 days).

Bird's-foot trefoil (forage) - immediately after first cutting (within 5 days).

Bird's-foot trefoil (seed production) - when trefoil is 8 to 16 cm high and actively growing

Pasture Renovation - in May after 5 to 10 cm of new weed growth has appeared and prior to seeding of legumes.

Pre or post-seeding burndown of labelled crops

- apply before or after seeding, but prior to crop emergence to control emerged weeds. For spring control of winter annual weeds, or when weed growth is dense and weeds are greater than 10 cm in height, use at least 3.0 L per hectare and higher volumes of water.

7. Application Considerations

Foliage must be thoroughly covered to obtain good results. For dense weed growth, use the higher rate and the higher volume of water specified on the label. Special equipment is necessary for use on some row crops. This equipment shields the crops from the spray. Avoid spraying on windy days. Applications made on cloudy days, during dull sunlight or just prior to or during periods of darkness will generally increase the subsequent effectiveness of the treatment. **Do not** apply with mist blowers. Avoid application or drift onto crops, ornamental plants, lawns, grazing areas or other desirable growth.

8. Environmental Considerations

Gramoxone is toxic to aquatic organisms and terrestrial plants. Buffer zones are required between the point of direct application and the closest downwind edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelterbelts, woodlots, hedgerows, rangelands, riparian areas and shrublands), and sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands). Maintain the following buffers to freshwater habitats: if depth is less than 1 m the buffer must be 50 m; depth 1 to 3 m the buffer must be 40 m; depth greater than 3 m the buffer must be 30 m. Use a 20 m buffer to all terrestrial habitats.

Field sprayers fitted with drift-reducing devices can have their buffer zones reduced by 70% with the use of shrouds or 30% with the use of cones.

Effect of Rainfall

once the spray solution has dried on the plant tissue, rain will not reduce the effectiveness of Gramoxone.

Movement in Soil

Gramoxone binds to the soil and becomes biologically unavailable.

9. Grazing And Cropping Restrictions

Do not graze or harvest crops within 30 days of treatment.

Re-cropping

no restriction.

HARMONY K (*clodinafop-propargyl plus thifensulfuron methyl plus tribenuron methyl plus dicamba*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 1,2,4

Pre-packaged Mix

Pre-packaged tank mix of Refine Extra, Horizon and Banvel II herbicides for broad-spectrum weed control in spring wheat (excluding durum). Follow label directions regarding tank mixes, rates, weeds controlled, timing, mixing instructions, etc. Also refer to write-ups on Harmony Total in this Guide for other detailed information.

HARMONY TOTAL/ HARMONY SG (*clodinafop-propargyl + thifensulfuron methyl + tribenuron methyl*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 1,2

1. Formulation

Harmony Total

1. Refine Extra (dry flowable): 50% thifensulfuron methyl, 25% tribenuron methyl
2. Horizon (emulsifiable concentrate): (240g/L)

Harmony SG

1. Refine SG (soluble granules): 33.3% thifensulfuron methyl, 16.7% tribenuron methyl
2. Horizon (emulsifiable concentrate): (240 g/L)

2. Registered Mixes

MCPA ester

3. Crops

spring, durum wheat. **Do not** apply to Belvedere wheat. **Do not** treat wheat underseeded to forages.

4. Weeds Controlled

annual smartweed, ball mustard, chickweed, common groundsel, corn spurry, cow cockle, flixweed, green foxtail, green smartweed, hemp-nettle, kochia, lady's-thumb, lamb's-quarters, narrow-leaved hawkbeard, redroot pigweed, Russian thistle, shepherd's-purse, stinkweed, tartary buckwheat, volunteer canola (excluding Clearfield canola), wild mustard, wild buckwheat, wild oats.

5. Weeds Suppressed

Canada thistle, sowthistle, round-leaved mallow, cleavers, scentless chamomile, stork's-bill, toadflax.

6. When Used

Crop

Harmony Total: apply post-emergence to crop from 2 leaf to prior to emergence of the 4th tiller.

Harmony SG: apply from the 2 leaf to the full flag leaf stage.

Weeds

wild oats: 1 - 6 true leaves on the main stem and prior to emergence of the 4th tiller; **green foxtail:** 1 - 5 true leaves on the main stem prior to emergence of the 3rd tiller; **most annual broadleaved- weeds** - apply to young actively growing broadleaf weeds less than 10 cm tall or across before the canopy closes. Weeds emerging after treatment may not be controlled; **wild buckwheat:** apply to actively growing wild buckwheat in the cotyledon to 1 - 3 leaf stage; **cleavers:** Apply at 1 - 3 whorl stage; **Canada thistle, sow-thistle:** apply when the majority of the thistles have emerged and are actively growing. For best top growth control, apply when thistles are not larger than 15 cm tall before bud stage and before crop canopy prevents thorough coverage of the thistles. A single application will effectively inhibit the ability of emerged thistles to compete with the crop. Later emerging thistles will not be controlled; **chickweed:** apply when the chickweed is small (1 - 6 leaf) and actively growing but before crop canopy prevents thorough coverage of weeds. Chickweed

emerging after application will not be controlled; **round-leaved mallow:** apply to actively growing round-leaved mallow in the 2-6 leaf stage (10-12 cm in height). Harmony Total will keep mallow stunted but may not reduce the overall populations; **toadflax:** apply when toadflax is no taller than 15 cm in height. A control program for this weed includes both frequent tillage and chemical application.

7. Application Considerations

Higher spray volumes are required for dense crop canopy and/or large weeds. Weeds should be less than 10 cm tall or across at application. Applications to wheat that is stressed by severe weather conditions, frost, low fertility, drought, water logged soil (soils at or near field capacity), disease or insect damage may result in crop injury.

8. Environmental Considerations

Do not contaminate irrigation water or apply to land where tail water will be used to irrigate crop land. **Do not** apply, drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots. **Do not** use on lawns, walks, driveways, recreational grounds or similar areas.

Effects of Rainfall

Rainfall within 4 hours of application of Harmony Total or 1 hour for Harmony SG may lessen degree of weed control.

Movement in Soil

Moves little in the soil and disappears from the soil quickly.

9. Grazing And Cropping Considerations

Wheat may be grazed or fed to livestock 7 days after the application of Harmony Total.

Re-cropping

The following crops may be planted two months after an application of Harmony Total: canola, flax, lentils and alfalfa. Pre-harvest interval: 60 days.

HOE-GRASS II (*diclofop-methyl/bromoxynil*)

HERBICIDE GROUP - 1,6

1. Formulations

emulsifiable concentrate (230 g/L diclofop-methyl present as methyl ester and 80 g/L bromoxynil (present as the ester of N-octanoic acid).

2. Registered Mixes

MCPA amine 500 (for volunteer canola and wild mustard control) use only on wheat, barley (except Klages and Betzes) spring rye and triticale.

Caution: Do not exceed, under any circumstances, recommended rate of MCPA 500 as a severe reduction in grassy weed control will result. Under certain environmental conditions, such as prolonged drought, excessive daytime temperatures and/or low humidity preventing active growth, application of the tank mixture should be avoided. A reduction in grassy weed control will result.

Hoegrass II plus Decis insecticide on wheat and barley.

3. Crops

barley (except Klages and Betzes), spring and durum wheat, triticale, spring rye and the following seedling grasses for seed production only: bromegrass, Russian wild ryegrass, creeping red fescue, crested wheatgrass, intermediate wheatgrass
Underseeding: Do not treat crops underseeded to forage legumes.

4. Weeds Controlled

barnyardgrass, common groundsel, cow cockle, green foxtail, green smartweed, knawel, Kochia, lady's-thumb, lamb's-quarters, night-flowering catchfly, Persian dandelion, redroot pigweed, Russian thistle, scentless chamomile, stinkweed, tartary buckwheat, volunteer corn, wild buckwheat, wild mustard, wild oats, yellow foxtail.

5. Weeds Suppressed

None.

6. When Used

Crop

wheat - no leaf stage restriction; **barley (except Betzes and Klages)** - apply in the 1 to 4-leaf stage of barley and prior to tillering. Application beyond the 4-leaf stage will result in crop damage. Yellow blotches may appear on barley under certain environmental conditions but these will be rapidly outgrown and will not affect maturity; **seedling forage grasses for seed production** - apply in the 2 to 5 leaf stage of the forage grass.

Weeds

Apply in the 1 to 4-leaf stage of wild oats, green and yellow foxtail and barnyard grass, 1 to 3- leaf stage of Persian dandelion and a height of 15-25 cm for volunteer corn. Broadleaved weeds are controlled from seedling to early 4-leaf stage (except for Russian thistle where the stage is seedling to 5 cm in height).

Note: It is very important to apply at proper leaf stages for adequate results. Treatment must take place before the grassy weeds tiller and when the majority of broadleaved weeds are in the seedling to early 4-leaf stage.

7. Application Considerations

Uniform thorough coverage is important for control. Tilt nozzles forward 45° to ensure better coverage. This is essential especially in areas of heavy weed populations. Apply before the use of any other herbicide. Apply at least 4 days before use of any other herbicide to eliminate a reduction in weed control.

8. Environmental Considerations

This product is TOXIC TO FISH. Do not contaminate water supplies, ponds, lakes, streams and irrigation ditches through direct application, disposal of waste or cleaning equipment.

Effects of Rainfall

Rainfall within one hour will decrease activity.

Movement in Soil

Some movement may occur if sufficient moisture is present.

9. Grazing And Cropping Restrictions

Do not graze treated field prior to harvest. **Do not** use treated field for green forage. **Do not** apply Hoe-Grass II within 60 days of harvest.

Re-cropping

No restriction.

HORIZON BTM (*clodinafop-propargyl plus bromoxynil plus MCPA ester*)

For Use in the Peace River Region, Okanagan and Creston Flats Only

HERBICIDE GROUP - 1, 6,4

A co-pack of Horizon, Mextrol and Score adjuvant for control of annual grassy and broadleaved weeds in spring and durum wheat. Follow label directions regarding tank mixes, rates, weeds controlled, timing, mixing instructions, etc. Also refer to write-ups on Horizon, Mextrol and MCPA in this Guide for other detailed information.

HORIZON 240 EC (*clodinafop-propargyl*)

For Use in the Peace River Region, Okanagan and Creston Flats Only

HERBICIDE GROUP - 1

1. Formulation

emulsifiable concentrate; clodinafop-propargyl 240 g/L

2. Registered Mixes

Ally, Attain, Bucril M, Curtail M, 2,4-D amine 500, Dichlorprop, DyVel, Estaprop, Frontline, Lontrel, Lontrel + MCPA Ester 500, Lontrel + Refine Extra, MCPA Amine or ester 500, MCPA Na-salt, Mecroprop, Mextrol, Pardner, Prestige, Refine Extra, Target, Thumper, Trophy, Turbo-prop, Unity Horizon can also be tank mixed with Decis and Matador insecticides and Tilt fungicide.

Refer to tank mix partner label for rates and crop stages.

Score Adjuvant (Score Adjuvant must be added to all applications with Horizon).

3. Crops

All types of durum and spring wheat.

4. Weeds Controlled

barnyardgrass, green foxtail, Persian darnel, volunteer oats, volunteer canaryseed, wild oats, yellow foxtail.

5. Weeds Suppressed

None.

6. When Used

Crop

For optimum crop tolerance apply prior to emergence of the 4th tiller. When tank mixing, always refer to the label of the broadleaf partner herbicide.

Annual Grassy Weeds

Wild oats and canaryseed- 1 to 6 true leaves on the main stem and prior to emergence of the 4th tiller. Green and yellow foxtail, Persian darnel and barnyardgrass - 1 to 5 leaves on the main stem. (For optimum control apply before tillering and while foxtail, Persian darnel and barnyardgrass are actively growing).

Volunteer Oats

3 - 6 true leaves on the main stem and prior to emergence of the 4th tiller.

Broadleaved Weeds

Broad-spectrum control of broadleaved weeds when tank mixed with the listed herbicides. Consult the label of the tank mix partner for a list of broadleaf weeds controlled, rates, timing, re-cropping restrictions, grazing interval restrictions, recommendations for specific weeds, directions for use and precautions.

7. Application Considerations

Do not apply to crop that is stressed by conditions such as frost, low fertility, drought, flooding, disease or insect damage as crop injury may result.

8. Environmental Considerations

Effects of Rainfall

Rainfall within 30 minutes of application may reduce the effectiveness of Horizon

Movement in Soil

None.

9. Grazing And Cropping Restrictions

Do not treat wheat underseeded to forages. Observe a minimum of 3 days before grazing livestock on crops treated with Horizon 240 EC. Observe minimum interval to harvest of 60 days after treatment.

INFINITY (*pyrasulfotole plus bromoxynil*)

HERBICIDE GROUP - 6, 27

1. Formulation

pyrasulfotole - emulsifiable concentrate (37.5 g/L)
plus bromoxynil emulsifiable concentrate (210 g/L).

2. Registered Mixes

Peace River Region Only - Puma 120 Super, Horizon.

3. Crops

wheat (spring, durum*, winter), barley, triticale, timothy (seed production only).

Do not underseed to legumes.

* Peace River Region Only

4. Weeds Controlled

Broadleaved weeds

annual sow-thistle, chickweed, cleavers, flaxweed, hemp-nettle, kochia, lamb's-quarters, pale smartweed, redroot pigweed, Russian thistle, shepherd's-purse, volunteer canola (includes conventional and herbicide tolerant), wild buckwheat, wild mustard.

5. Weeds Suppressed

Canada thistle, dandelion, perennial sowthistle.

6. When Used

Crop

1-leaf stage until the flag leaf is just visible but still rolled.

Weeds

Apply when majority of weeds are in the 1 to 6 leaf stage.

7. Application Considerations

Do not enter or allow worker entry into treated areas until 12 hours after application. Application beyond emergence of the flag leaf may result in crop injury.

Do not apply to a crop that is stressed by severe weather conditions, frost, low fertility, and drought.

8. Environmental Considerations

This product is toxic to aquatic organisms and non-target terrestrial plants. **Do not** apply this product directly to freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands), or estuarine/ marine habitats.

The use of this chemical may result in contamination of groundwater particularly in areas where soils are permeable (e.g. sandy soil) and/or the depth to the water table is shallow. To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay. Avoid application when heavy rain is forecast. For field sprayer applications maintain a 1 metre buffer zone to fresh water and terrestrial habitats. Read the label for special precautions and buffer zones regarding aerial application.

Effects of Rainfall

Rainfall within 1 hour of application may reduce effectiveness.

Movement in Soil

Rapidly degraded in soil.

9. Grazing and Cropping Restrictions

Do not graze the treated crops or cut for forage or hay within 25 days of application.

Do not harvest wheat or triticale for grain or straw within 50 days of application.

Do not harvest barley for grain or straw within 45 days of application.

Succeeding Crops

The following crops have been field tested to indicate they may be safely planted at the prescribed interval after application: alfalfa, barley, canaryseed, canola, flax, lentils, field peas, oats, spring and durum wheat. A field bioassay must be conducted the year prior to growing any other crop to confirm crop safety.

KORIL (*bromoxynil*)

See page: 148

LIBERTY 150 SN (*glufosinate ammonium*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 10

1. Formulations

liquid (150 g/L).

2. Registered Mixes

Centurion, Select, Fusion on glufosinate ammonium resistant canola varieties only (ie. Liberty Link canola).

3. Crops

canola varieties with the Liberty Link label only; crop desiccation of alfalfa (seed production only).

4. Weeds Controlled

Grassy weeds

barnyardgrass, green foxtail, volunteer (canola, flax, wheat), wild oat.

Broadleaved weeds

cleavers, common chickweed, cow cockle, dandelion, flixweed, hemp-nettle, kochia, lady's-thumb, lamb's-quarters, perennial sowthistle, redroot pigweed, round-leaved mallow, scentless chamomile, smartweed, stinkweed, storks-bill, wild buckwheat, wild mustard.

5. Weeds Suppressed

Canada thistle, quackgrass, volunteer barley.

6. When Used

Crop

canola (Liberty Link)

Apply from the cotyledon stage up to the early bolting stage of canola. Slight discoloration of the canola may be visible after application. This effect is temporary and will not influence crop growth, maturity or yield. A second application can be made to fields treated initially with up to 3.33 L/ha if new weed germination or growth is present. Apply when the new weed growth is in the correct leaf stage and up to the early bolting stage of canola growth. **Do not** apply more than 3.33 L/ha on the second application; **alfalfa crop desiccation (seed production only)**: apply at 50-75% pod turn (brown) stage.

Weeds

Application timing to weeds is dependent on species, rate and population density (quackgrass). Refer to product label or label of tank mix partner for directions on application timing.

7. Application Considerations

Avoid contact with other desirable plants or crops by direct application or from spray drifts as severe damage may occur. Crop injury may result if applied to a crop stressed by severe weather conditions, frost, drought, water-saturated soil, low fertility, disease or insect damage.

Workers should not enter treated fields within 24 hours of treatment. Weed control may be reduced when heavy dew, fog or mist is present at the time of application.

8. Environmental Considerations

Leave a 15 metre buffer between the edge of the treated field and adjacent crops not tolerant to Liberty 150 SN and to environmentally sensitive areas (wetlands, sloughs, ponds, rivers or other open bodies of water, shelterbelts, wildlife habitat, etc).

Effects of Rainfall

If rain occurs within 4 hours of application, effectiveness may be reduced.

Movement in Soil

Glufosinate ammonium breaks down rapidly in the soil which will effectively limit soil movement.

9. Grazing And Cropping Restrictions

Do **not** graze the treated crop or cut for hay. Grain and meal from treated crop can be fed to livestock.

LIBERTY 200 SN (glufosinate ammonium)

HERBICIDE GROUP - 10

1. Formulations

liquid (200 g/L).

2. Registered Mixes

ammonium sulphate.

3. Crops

canola and field corn varieties with the Liberty Link label only.

4. Weeds Controlled

Grassy weeds

barnyardgrass, crabgrass, fall panicum, giant foxtail, green foxtail, wild Proso millet, volunteer (canola, flax, wheat), yellow foxtail, wild oat, witchgrass.

Broadleaved weeds

common chickweed, cocklebur, eastern black nightshade, lady's-thumb, lamb's-quarters, perennial sow-thistle, redroot pigweed, shepherd's-purse, stinkweed, velvetleaf, wild buckwheat, wild mustard, wormseed mustard.

5. Weeds Suppressed

Canada thistle, field bindweed, quackgrass.

6. When Used

Crop

NOTE: Liberty 200SN is **only** to be used in glufosinate ammonium tolerant varieties of canola and field corn (Liberty Link).

canola (Liberty Link)

apply from the cotyledon stage up to the early bolting stage of canola. **Do not** apply beyond the

early bolting stage of canola; **field corn (Liberty Link):** apply from the 1-8 leaf stage of the corn plant or 5-6 visible collars (the leaf is counted once the next leaf is visible in the whorl).

A second application can be made to fields treated initially with up to 2.5 L/ha if new weed germination or growth is present. Apply when the new weed growth is in the correct leaf stage and up to the early bolting stage of canola. **Do not** apply more than 4.5 L/ha in one season.

Weeds

Application timing to weeds is dependent on species and rate. Refer to product label for directions on application timing. For quackgrass control and enhanced control of velvetleaf, add ammonium sulphate to the tank at a rate of 6 L/ha (49% solution).

Split application

For season long control of the above listed weeds a split application program can be used. The first application must be a minimum of 2 L/ha and at the proper weed stage. For the second application, the rate of 1.25 L/ha may be utilized provided the herbicide is applied as soon as the second flush of weeds occurs and before the maximum leaf stage of the crop.

7. Application Considerations

Avoid contact with other desirable plants or crops by direct application or from spray drifts as severe damage may occur. Crop injury may result if applied to a crop stressed by severe weather conditions, frost, drought, water-saturated soil, low fertility, disease or insect damage.

Workers should not enter treated fields within 24 hours of treatment. Weed control may be reduced when heavy dew, fog or mist is present at the time of application.

8. Environmental Considerations

Leave a 15 metre buffer between the edge of the treated field and adjacent crops not tolerant to Liberty 200 SN and to environmentally sensitive areas (wetlands, sloughs, ponds, rivers or other open bodies of water, shelterbelts, wildlife habitat, etc).

Effects of Rainfall

If rain occurs within 4 hours of application, effectiveness may be reduced.

Movement in Soil

Glufosinate ammonium breaks down rapidly in the soil which will effectively limit soil movement.

9. Grazing And Cropping Restrictions

Canola

Grain and meal from treated crop can be fed to livestock. **Do not** graze or feed other portions of the treated crop to livestock.

Corn

Do not apply within 86 days of harvesting corn grain. **Do not** graze the treated fields within 20 days of application.

Re-cropping

Plant back Intervals: 70 days for buckwheat, barley, millet, oats, rye, sorghum, triticale and wheat; 120 days for all other crops except field corn, canola and soybeans. No plant back interval is required for field corn, canola or soybeans.

LOGIC (*bromoxynil plus MCPA*)

See page: 143

LONTREL (*clopyralid*)

HERBICIDE GROUP - 4

1. Formulation

solution - clopyralid monoethanol amine salt (360 g/L).

2. Registered Mixes

canola

Poast Ultra, Venture, Fusion, Select

herbicide tolerant canola

Odyssey for use on imazethapyr tolerant Clearfield canola only. Roundup (Original or Transorb) or Vantage Plus for glyphosate tolerant canola.

spring wheat and spring barley

2,4-D or MCPA (amine or ester).

oats

MCPA (amine or ester).

spring wheat (excluding durum) and barley

2,4-D ester or MCPA ester plus Refine Extra.

Refer to tank mix partner label for rate and timing information.

3. Crops

canola, spring wheat, spring barley, oats, seedling and established grasses (forage and seed production) including Kentucky bluegrass, smooth bromegrass, reed canary grass, creeping red fescue, meadow fescue, tall fescue, meadow foxtail, orchard grass, Altai wild ryegrass, Russian wild ryegrass, timothy, crested wheatgrass, intermediate wheatgrass, slender wheatgrass, streambank wheatgrass, tall wheatgrass. Summerfallow, pasture, rangeland and non-cropland.

Do not underseed to legumes.

4. Weeds Controlled

alsike clover, Canada thistle*, common groundsel, perennial sowthistle*, scentless chamomile, volunteer alfalfa, vetch, wild buckwheat.

* top-growth control

5. Weeds Suppressed

sheep sorrel, oxeye daisy.

6. When Used

Crop

canola: 2-6 leaf stage; **wheat, oats and barley:** 3 leaf to flag-leaf emergence stage; **seedling grasses (forage and seed production):** apply at the 2-4 leaf stage; **established grasses (forage and seed production):** apply at the shot blade stage or in the fall after harvest or early spring.

Weeds

Apply when most weeds are young and actively growing. For Canada thistle, perennial sowthistle and scentless chamomile apply in the rosette to pre-bud stage of growth. Best results are obtained when Canada thistle is actively growing and soil moisture is adequate for rapid growth. Under dry soil conditions and poor growing conditions, control of Canada thistle may be severely reduced. Applications made after the Canada thistle flower

has reached the purple bud stage will not provide satisfactory control.

7. Application Considerations

Manure and Straw

Residues of the herbicide occurring in straw may be harmful to susceptible plants; therefore, do not use straw or crop residue from treated crops for composting or mulching susceptible broadleaved crops. If the straw or crop residue is used for animal bedding or feed, return the manure to fields to be planted to clopyralid tolerant crops such as wheat, barley, oats, rye, forage grasses, canola or flax. **Do not** grow susceptible crops such as peas, beans, lentils, potatoes, sunflowers or other sensitive crops on land that has been mulched with straw containing Lontrel residues within the last 12 months.

8. Environmental Considerations

Sensitive Plants

Do not apply Lontrel directly to, or otherwise permit it to come into contact with sunflowers, legumes (such as peas, beans, lentils or alfalfa), fruit or vegetable crops, flowers or other desirable broadleaved plants. Take precautions to prevent spray mists containing it to drift onto them.

Special precautions should be taken during application to non-cropland areas such as roadsides, pipelines and railways where sensitive desirable vegetation may be present. **Do not** apply to or allow drift to come into contact with sensitive desirable vegetation such as vetch or clover that may be found on embankments.

Non-Target Sites

Avoid contamination of non-target land, water or irrigation ditches. **Do not** use Lontrel in the following areas: standing or flowing water; the inner banks or bottoms of irrigation ditches; in areas where surface water can run off to adjacent croplands either planted or to be planted to sensitive crops.

Effects of Rainfall

Allow 4 to 6 hours between application and expected rainfall.

Movement in Soil

Clopyralid is somewhat soluble but binds to organic matter in the soil. Not likely to leach in agricultural soils.

9. Grazing And Cropping Restrictions

Crops or areas treated with Lontrel may be grazed immediately following treatment.

Re-cropping

Residues of Lontrel can remain in the soil following the year of use, thereby affecting growth of sensitive crops. Fields treated in the previous crop year can be seeded to wheat, oats, barley, rye (not underseeded to legumes, clover or alfalfa), flax, canola/rapeseed, forage grass, or can be summerfallowed.

MAVERICK II (glyphosate)

See page: 171

MCPA (amine, ester, salts)

HERBICIDE GROUP - 4

1. Formulations

Numerous formulations of MCPA amines, esters, K and Na salts are available from many manufacturers. Labels may be accessed through the Pest Management Regulatory Agency website at http://pr-rp.pmra-arla.gc.ca/portal/page?_pageid=34,17551&_dad=portal&_schema=PORTAL

2. Registered Mixes

All formulations can be used in tank mix with other products. Refer to the label of tank mix partners and follow the most stringent precautions, restrictions and directions for use.

3. Crops

MCPA (ester)

spring, durum and winter wheat, barley, oats, rye, established dormant alfalfa, alsike clover and red clover, grass pasture/rangeland.

MCPA-K (potassium salt)

spring, durum and winter wheat, barley, oats, rye, field corn.

MCPA (amine)

spring, durum and winter wheat, barley, oats, rye, field corn, field peas, grass pasture/rangeland, seedling and established red clover for seed, seedling red clover for forage and established dormant legumes.

MCPA-Na (sodium salt)

spring, durum and winter wheat, barley, oats, rye, field corn, field peas.

4. Weeds Controlled***MCPA (amine)*****Susceptible**

burdock (seedling), cocklebur, flixweed, kochia, lamb's-quarters, mustards (ball, hare's-ear, Indian, tumble, wild, wormseed), prickly lettuce, Russian pigweed, shepherd's-purse, stinkweed, sweetclover, vetch, wild radish, wild sunflower.

Harder to Kill

bluebur, peppergrass, dog mustard, hairy galinsoga, oak-leaved goosefoot, pineappleweed, purslane, redroot pigweed, tall buttercup, tansy mustard, tumble pigweed.

MCPA (ester)**Susceptible**

burdock, cocklebur, flixweed, lamb's-quarters, mustards (wild, tumble, Indian, hare's-ear, ball, wormseed), prickly lettuce, Russian pigweed, shepherd's-purse, stinkweed, vetch, wild radish, wild sunflower.

Harder to Kill

annual sowthistle, biennial wormwood, bluebur, curled dock, dog mustard, goat's-beard, gumweed, hairy galinsoga, hemp-nettle, kochia, oak-leaved goosefoot, peppergrass, purslane, redroot pigweed, Russian thistle, sweetclover, tansy mustard, tartary buckwheat.

MCPA (potassium salt)**Susceptible**

bluebur, burdock, cocklebur, flixweed, kochia, lamb's-quarters, mustards (Indian, tumble, hare's-ear, ball), prickly lettuce, Russian pigweed, shepherd's-purse, stinkweed,

Harder to Kill

annual smartweeds, annual sowthistle, biennial wormwood, curled dock, dandelion, dog mustard, peppergrass, purslane, redroot pigweed, tansy mustard.

MCPA (sodium salt)**Susceptible**

burdock (seedling), cocklebur, flixweed, lamb's-quarters, prickly lettuce, mustards (ball, hare's-ear, Indian, tumble, wild, wormseed), Russian pigweed, shepherd's-purse, stinkweed, wild radish, wild sunflower.

Harder to Kill

annual smartweeds, bluebur, curled dock, dog mustard, goat's-beard, hairy galinsoga, peppergrass, purslane, redroot pigweed, tall buttercup, tansy mustard.

5. Weeds Suppressed***MCPA (amine)***

annual smartweed, annual sowthistle, biennial wormwood, blue lettuce, Canada thistle, curled dock, dandelion, field bindweed, field horsetail, goat's-beard, gumweed, hedge bindweed, hemp-nettle, hoary cress, leafy spurge, perennial sowthistle, plantain, tartary buckwheat, wild buckwheat.

MCPA (ester)

annual smartweed, annual sowthistle, biennial wormwood, blue lettuce, Canada thistle, corn spurry, curled dock, dandelion, field bindweed, field horsetail, goat's-beard, gumweed, hedge bindweed, hemp-nettle, hoary cress, lady's-thumb, leafy spurge, perennial sowthistle, plantain, redroot pigweed, Russian knapweed, tartary buckwheat, wild buckwheat.

MCPA (potassium salt)

blue lettuce, Canada thistle, field bindweed, field horsetail, gumweed, hedge bindweed, hemp-nettle, hoary cress, leafy spurge, perennial sowthistle, tartary buckwheat, vetch, wild buckwheat.

MCPA (sodium salt)

annual sowthistle, biennial wormwood, blue lettuce, Canada thistle, field bindweed, field horsetail, gumweed, hedge bindweed, hemp-nettle, hoary cress, leafy spurge, perennial sowthistle, Russian knapweed, tartary buckwheat, wild buckwheat.

6. When Used

MCPA (amine)

spring wheat, barley, spring rye - 3 leaf expanded to early flag leaf stage.

winter wheat, fall rye - before flag leaf stage in spring.

oats - up to flag leaf stage.

established legumes (not sweetclover) - early spring dormant or in fall when legume tops have been killed by frost.

field corn - up to 15 cm in height or before 6 leaf stage. **Do not** cultivate for 3 weeks following application.

field peas - 2 to 5 nodes.

seedling red clover (seed and forage production) - 1-3 trifoliolate leaf stage.

established red clover (seed production) - dormancy break in spring to 7.5 cm in height.

MCPA (esters)

spring wheat, barley, spring rye - 3 leaf expanded to early flag leaf.

winter wheat, fall rye - full tillering to shot blade stage.

oats - 1 leaf expanded to early flag leaf.

established legumes(not sweetclover) - early spring dormant.

MCPA (potassium salt)

spring wheat, barley, spring rye - 3 leaf to early flag leaf.

winter wheat, fall rye, - in spring before flag leaf stage.

oats - 2-6 leaf stage.

MCPA (sodium salt)

spring wheat, barley, spring rye - 3 leaf expanded to early flag leaf stage.

winter wheat, fall rye - before flag leaf in spring.

oats - emergence to flag leaf stage.

field corn - 15 to 40 cm in height. Use drop nozzles to keep spray off of corn leaves.

field peas - 10 to 20 cm tall before flowering begins.

underseeded legumes (red clover, alsike, late maturing

alfalfa) - spray when a protective canopy of grain or weeds cover the legume.

7. Application Considerations

Recommendations vary from label to label. Carefully follow instructions on the formulation being used. Spray during warm weather when the weeds are young and growing actively. Danger of drift from amine formulations is lower than from esters.

8. Environmental Considerations

Coarse sprays are less likely to drift. **Do not** allow spray drift to contact vegetables, flowers, grapes, fruit trees, ornamentals or other desirable plants. **Do not** spray during periods of high temperatures when crops may be under stress as damage to the crop may occur. Appropriate buffer zones should be established between treatment areas and aquatic systems, and treatment areas and significant wildlife habitat. **Do not** spray in winds exceeding 10 km per hour. **Do not** spray in dead calm near sensitive plants.

Effects of Rainfall

Rain within 4 hours of spraying will decrease activity.

Movement in Soil

Readily leached from soil. Avoid use in porous soil. Subject to leaching near wells or potable water bodies. MCPA persistence in the soil is up to one month in most conditions and up to 6 months in drier climates.

9. Grazing And Cropping Restrictions

Do not graze or cut for greenfeed within 7 days of application. If used in seedling red clover for forage do not cut or use for greenfeed in the year of application.

MECOPROP (*mecoprop*)

See page: 150

MEXTROL (*bromoxynil plus MCPA*)

See page: 143

MUSTER GOLD II (quizalofop-ethyl plus ethametsulfuron-methyl)

**For Use in the Peace River Region
Only**

HERBICIDE GROUP - 1, 2

1. Formulation

a pre-packaged mix of Muster (dry flowable) (75%) and Assure II (emulsifiable concentrate) (96 g/L).

2. Registered Mixes

none.

3. Crops

canola.

4. Weeds Controlled

Broadleaved weeds

flixweed, hemp-nettle, smartweed (lady's-thumb), stinkweed, wild mustard

Grassy weeds

barnyardgrass, green foxtail, volunteer barley, volunteer corn, volunteer oats, volunteer wheat, wild oats.

5. Weeds Suppressed

quackgrass, redroot pigweed.

6. When Used

Crop

Apply post-emergence from 2 leaf to beginning of bolting.

Weeds

Apply when annual grassy weeds are in the 2 leaf to early tillering stage and when broadleaved weeds are at the cotyledon to 6 leaf stage (1 to 4 leaf for stinkweed). Apply when quackgrass is in the 2-6 leaf stage.

7. Application Considerations

Must be applied with Canplus 411, Merge or Suremix surfactant. **Do not** apply to plants stressed by severe conditions such as drought, low fertility, saline soils, water logged soils, disease or insect damage as crop injury may result. When very high weed seedling population occurs, larger seedlings may interfere with coverage of smaller seedlings and control may be reduced.

8. Environmental Considerations

Avoid over-spray or drift to important wildlife habitats. Leave a 15 metre buffer zone between the last spray swath and aquatic habitats such as wetlands, sloughs and streams. Leave a 5 metre buffer zone between the last spray swath and sensitive terrestrial habitats such as shelterbelts, woodlots, vegetated ditchbanks, dry slough borders and other cover on the edges of fields.

Effects of Rainfall

If rainfall occurs soon after application, control may be reduced. Four to six hours of dry weather are needed to allow the herbicide to be absorbed by weed foliage. Environmental conditions that slow the drying of the herbicide on the foliage, such as high relative humidity, cool air temperature or cloud cover, may increase the time required.

Movement in Soil

Movement is restricted by finely textured soils, soil organic matter and neutral to acidic conditions.

9. Grazing And Cropping Restrictions

Do not graze treated fields or harvest for forage or hay. **Do not** harvest within 64 days of treatment.

Re-cropping

Minimum interval prior to planting (months after application):

10 months - spring wheat, durum wheat, barley, flax, oats.

22 months - alfalfa, canary grass, canola, drybeans, fababeans, fescue, lentils, peas, red clover, tame mustard.

For all other crops, perform a field bioassay (as described on the label) at 22 months.

MUSTER (*ethametsulfuron-methyl*)

For Use in the Okanagan, Creston Flats and Peace River Region Only

HERBICIDE GROUP - 2

1. Formulation

Muster (dry flowable) (75%).

2. Registered Mixes

Assure II, Poast Ultra

Must be applied with Ag-Surf, Agral 90 or Citowett Plus surfactant.

3. Crops

canola (spring seeded).

4. Weeds Controlled

Grassy weeds

barnyardgrass, green foxtail, volunteer barley, volunteer corn, volunteer oats, volunteer wheat, wild oats.

Broadleaved weeds

flixweed, hemp-nettle, green smartweed, wild mustard, stinkweed (high rate).

5. Weeds Suppressed

redroot pigweed, stinkweed (low rate).

6. When Used

Crop

Apply post-emergence from 2 leaf to beginning of bolting.

Weeds

Apply when broadleaved weeds are at the cotyledon to 6 leaf stage (1 to 4 leaf for stinkweed).

7. Application Considerations

Must be applied with registered surfactant. **Do not** apply to plants stressed by severe conditions such as drought, low fertility, saline soils, water logged soils, disease or insect damage as crop injury may result. When very high weed seedling population

occurs, larger seedlings may interfere with coverage of smaller seedlings and control may be reduced.

8. Environmental Considerations

Avoid over-spray or drift to important wildlife habitats. Leave a 15 meter buffer zone between the last spray swath and aquatic habitats such as wetlands, sloughs and streams. Leave a 5 meter buffer zone between the last spray swath and sensitive terrestrial habitats such as shelterbelts, woodlots, vegetated ditchbanks, dry slough borders and other cover on the edges of fields.

Effects of Rainfall

If rainfall occurs soon after application, control may be reduced. Four to six hours of dry weather are needed to allow the herbicide to be absorbed by weed foliage. Environmental conditions that slow the drying of the herbicide on the foliage, such as high relative humidity, cool air temperature or cloud cover, may increase the time required.

Movement in Soil

Movement is restricted by finely textured soils, soil organic matter and neutral to acidic conditions.

9. Grazing And Cropping Restrictions

Do not graze treated fields, feed to livestock or harvest for forage or hay within 60 days of treatment.

Re-cropping

Minimum interval prior to planting (months after application):

10 months - spring wheat, durum wheat, barley, flax, oats.

22 months - alfalfa, canary grass, canola, drybeans, fababeans, fescue, lentils, peas, red clover, tame mustard.

For all other crops, perform a field bioassay (as described on the label) at 22 months.

ODYSSEY (*imazamox + imazethapyr*)

HERBICIDE GROUP - 2

1. Formulation

water dispersible granule; 70%; (35% a.e. imazamox plus 35% a.e. imazethapyr).

2. Registered Mixes

Lontrel (Clearfield canola)

Equinox - field peas

3. Crops

Peace River region

imazethapyr and imazamox tolerant canola with Clearfield trait; field peas, alfalfa (seedling and established grown for seed).

Peace River Region and Southeast B.C. including Thompson-Okanagan and Kootenay region

imazethapyr and imazamox tolerant canola with Clearfield trait.

4. Weeds Controlled

Odyssey at 29 g/ha - redroot pigweed, volunteer tame mustard, wild mustard.

Odyssey at 43 g/ha - Broadleaved weeds: chickweed, cleavers, flixweed, green smartweed, hemp-nettle*, kochia*, lamb's-quarters*, redroot pigweed, Russian thistle*, shepherd's purse, stinkweed, stork's-bill, volunteer canola (non-imazethapyr tolerant canola only), volunteer mustard, wild buckwheat*, wild mustard. **Grassy weeds:** barnyard grass, green foxtail, Persian dandelion, volunteer barley, volunteer oats, volunteer wheat, wild oats.

* see weeds suppressed

5. Weeds Suppressed

*hemp-nettle, lamb's-quarters, kochia, suppressed in field peas. Russian thistle suppressed in imazethapyr and imazamox tolerant lentils.

6. When Used

Crop

field peas: apply from the 1 - 6 true leaf stage

of crop and after weeds have emerged; **canola (Clearfield):** apply from the 2 - 6 true leaf stage of crop and after the weeds have emerged; **alfalfa:** 1 - 4 leaf stage and after weeds have emerged.

Grassy Weeds

Apply from the 1 - 4 true leaf stage until early tillering.

Broadleaved Weeds

Apply from the cotyledon to 4 leaf stage.

7. Application Considerations

Do not apply by air and do not apply more than once per year. Read warnings listed under ENVIRONMENTAL CONSIDERATIONS.

8. Environmental Considerations

Odyssey is highly toxic to non-target plants. Overspray or drift to sensitive habitats should be avoided. A buffer zone of 14 metres is required between the downwind point of direct application and the closest edge of (1) sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands, and shrublands), (2) sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs, and wetlands) and (3) estuarine or marine habitats.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g., soils that are compacted or fine textured such as clay). Avoid application of this product when heavy rain is in the forecast. Contamination of aquatic areas resulting from runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

Do not apply during periods of dead calm or when winds are gusty.

When a tank mixture is used, consult the label of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture.

Effects of Rainfall

Do not apply if rainfall is expected within 3 hours.

Movement in Soil

Not leached appreciably.

9. Grazing And Cropping Restrictions

Do not graze treated crop or cut for hay. There are not sufficient data available to support such use.

Pre-Harvest Interval

After 60 days, canola and field peas can be harvested. Field peas treated may be fed to livestock 30 days after application.

Re-cropping

There is the possibility of residual soil activity the year following application. Research studies have shown that the following crops may be safely planted the year following Odyssey application: field peas, Clearfield canola, Clearfield lentils, spring wheat, durum wheat, oats, canaryseed, spring barley.

Research studies have shown that flax, canola and sunflower may be safely planted two (2) years following Odyssey application.

There are insufficient data for other follow crops. Conduct a field bioassay (a test strip grown to maturity) the year before growing any crop other than those listed above.

ORACLE (*dicamba*)

See page: 144

PARDNER (*bromoxynil*)

See page: 148

POAST ULTRA (*sethoxydim*)

HERBICIDE GROUP - 1

1. Formulation

emulsifiable concentrate (450 g/L).

2. Registered Mixes

Note: Merge adjuvant must be added to all applications.

Canola : Lontrel, Muster, Muster plus Lontrel, Pursuit (Clearfield canola only), Liberty (Liberty Link canola only).

Field peas: Pursuit

Refer to tank mix partner labels for further precautions, use instructions and crop rotation restrictions.

3. Crops

canola, field peas, creeping red fescue (seed production only), the following seedling and established forage legumes for seed and forage: alfalfa, alsike clover, cicer milkvetch, sainfoin, sweetclover.

4. Weeds Controlled

annual grasses: barnyardgrass, fall panicum, green and yellow foxtail, large crabgrass, Persian darnel, proso millet, volunteer barley, volunteer corn, volunteer wheat, volunteer oats, wild oats, witchgrass.

5. Weeds Suppressed

Quackgrass, foxtail barley (1 to 4 leaf).

6. When Used

annual grassy weeds

apply when weedy grasses to be controlled are 10 to 15 cm tall and in the 1 to 6 leaf stage. Most effective control is achieved when application is made at the 2 to 5 leaf stage when annual grasses are small and actively growing, soil moisture is good, and the crop is small enough to permit thorough spray coverage.

perennial grassy weeds

quackgrass - apply when quackgrass is actively growing **up to the 3 leaf stage** (8 to 12 cm in height). Refer to label for special instructions for controlling quackgrass and foxtail barley. Registered crops are tolerant at all stages of growth.

7. Application Considerations

Do not make applications to grasses stressed longer than 20 days due to lack of moisture because reduced control can result. Allow 4 days between application of Poast Ultra and any other chemical. Thorough pre-plant tillage is required on fields where sod or forage grass crops may have grown the previous year.

8. Environmental Considerations

Do not apply when weather conditions may cause spray drift from treated fields to adjacent crops.

Effects of Rainfall

Rainfall within one hour of application may reduce the effectiveness of the spray.

Movement in the Soil

Relatively immobile, breaks down quickly in soil.

9. Grazing And Cropping Restrictions

Do not graze the treated crop or cut for hay*; sufficient data are not available to support such use.

* Forage legumes indicated on the label may be cut for hay provided pre-harvest intervals are followed.

Re-cropping

Allow a minimum of 14 days between application and replanting of cereal or grass crops. Cultivation to a minimum depth of 10 cm is recommended 7 days prior to seeding.

Spray to Harvest Interval

canola - 70 days; field peas - 60 days; seedling and established forage legumes for seed and forage: alfalfa - 70 days; alsike clover, cicer milkvetch, sainfoin, sweetclover - 30 days.

PREPASS (*florasulam plus glyphosate*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 2,9

Prepass is a co-package containing florasulam (50g/L) suspension concentrate and glyphosate (360 g/L) herbicide solution for grass and broadleaf burn-down prior to seeding spring and durum wheat, barley and oats.

This co-pack is applied in the spring when weeds are actively growing and are in the 1 to 4 leaf stage to control: wild oats, downy brome, green foxtail, giant foxtail, volunteer barley, volunteer wheat, Persian dandelion, crabgrass, Canada fleabane, common ragweed, flixweed, hemp-nettle, kochia, lady's-thumb, lamb's-quarters, redroot pigweed, Russian thistle, volunteer canola (*including herbicide-tolerant and multiple herbicide-tolerant volunteer canola*), volunteer flax, wild buckwheat (*up to the 5-leaf stage*), wild mustard, cleavers, narrow-leaved hawk's-beard, shepherd's-purse, stinkweed and seedling dandelion up to 6 inches in diameter.

Refer to PrePass label for specific instructions, environmental considerations, grazing and cropping restrictions.

PRESTIGE (*fluroxypyr plus clopyralid plus MCPA*)

For Use in the Peace River Region only

HERBICIDE GROUP - 4

1. Formulations

Pre-packaged tank mix containing Prestige A - fluroxypyr (180 g/L), Prestige B - clopyralid, (50 g/L) plus MCPA 280 g/L.

2. Registered Mixes

barley, spring wheat (including durum): Achieve Liquid (green foxtail, wild oats), Assert 300 (wild oats), Puma Super (green foxtail, wild oats, barnyardgrass).

spring wheat (including durum): above and Everest and Horizon (green foxtail, wild oats).

3. Crops

spring wheat, durum wheat, spring barley, seedling and established grasses (seed production only): tall fescue, creeping red fescue, intermediate wheatgrass, crested wheatgrass, meadow brome, smooth brome, timothy.

Do not apply to crops underseeded to legumes.

4. Weeds Controlled

Canada thistle*, volunteer canola, cleavers (1-4 whorls), common groundsel, dandelion**, flixweed**, kochia***, lamb's-quarters, redroot pigweed, Russian thistle, scentless chamomile, shepherd's-purse, smartweed, annual sowthistle, perennial sowthistle*, stinkweed, round-leaved mallow (1 to 6 leaf), volunteer sunflower, tartary buckwheat, wild buckwheat (1 - 4 leaf), wild mustard.

* Season long control, with some re-growth in the fall

** Spring rosettes

*** Including biotypes resistant to Group 2 herbicides that inhibit the ALS enzyme.

5. Weeds Suppressed

common chickweed, hemp-nettle (2 - 6 leaf stage).

6. When Used

Crop

Apply when cereals are in the 3-leaf to just before the flag leaf emergence. **Do not** apply later than the flag leaf emergence stage. Apply when seedling or established grasses grown for seed are in the 4 leaf to flag leaf stage.

Weeds

Apply post-emergence when weeds are in the seedling stage (2 - 4 leaf).

7. Application Considerations

Optimum activity requires active crop and weed growth. The temperature range for optimum activity is 12°C to 24°C. Reduced activity will occur when temperatures are below 8°C or above 27°C. Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions, e.g. drought, heat or cold stress, or if weeds have initiated flowering, or if heavy infestations exist. **Do not** apply directly to, or otherwise permit the herbicide to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers, fruit, and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes or tobacco. Spray only when the wind is blowing away from sensitive crop, shelterbelt or garden.

8. Environmental Considerations

Prestige contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. Avoid overspray or drift to important wildlife habitats, such as ponds, wetlands, streams, woodlots and shelterbelts. A 15 metre buffer zone should be established between areas to be sprayed and aquatic environments or terrestrial habitats. **Do not** contaminate water when disposing of equipment wash waters. **Do not** contaminate irrigation ditches or water used for domestic purposes. **Do not** apply where run-off or erosion is likely to occur. 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 mixture.

Effects Of Rainfall

Do not apply if rain is expected within 1 hour.

Movement In Soil

The fluroxypyr component binds lightly to soil organic matter but does not bind readily to sand, silt or clay. Due to their relatively short half-life, they rarely move deeper than 15 cm deep in soil. MCPA is readily leached. The clopyralid component in the mix is soluble in water but generally not very mobile in the soil.

9. Grazing And Cropping Restrictions

Do not graze treated fields of cereal for 7 days after application. **Do not** harvest the treated mature crop within 60 days after application. **Do not** graze treated grass seed crops or cut for hay/forage.

Re-cropping

Fields previously treated with Prestige can be seeded the following year to barley, canola, flax, mustard, forage grasses, field peas, oats, rye and wheat, or fields can be summerfallowed. **Do not** seed to field peas for at least 10 months following treatment. Very dry soil conditions following application can result in a risk of injury to field peas grown in rotation. If severe drought conditions are experienced during the months of June to August inclusive in the year of application, delay seeding field peas an additional 12 months (total 22 months following application).

PREVAIL (*tralkoxydim plus clopyralid plus MCPA*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 1, 4

1. Formulation

A co-packaged tank mix including:

Prevail A (tralkoxydim) Liquid (400 g/L)

Prevail B (50 g/L) clopyralid plus (280 g/L) MCPA ester

Prevail C adjuvant

2. Registered Mixes

None.

3. Crops

wheat (spring, durum), barley.

4. Weeds Controlled

Canada thistle*, Russian pigweed, wild oats, redroot pigweed, green foxtail, dandelion**, Persian dandelion, scentless chamomile, flaxweed**, wild mustard, shepherd's-purse**, lamb's-quarters, smartweed**, common groundsel, annual sowthistle, stinkweed**, tartary buckwheat, wild buckwheat, perennial sowthistle (top-growth).

* season long control with some re-growth in fall

** spring rosettes

5. Weeds Suppressed

kochia (2 - 4 leaf).

6. When Used

Crop

wheat, barley - 3 leaf expanded to before flag leaf stage. **Do not** apply after the 6 leaf stage.

Weeds

wild oats: 1- 6 leaf stage of growth (up to emergence of third tiller). **green foxtail:** 1-5 leaf stage of growth (up to emergence of second tiller).

broadleaved weeds: 1-4 leaf stage of growth.

Canada thistle: 10-15 cm in height.

7. Application Considerations

Allow a minimum 7-day interval between the application of any other pesticide and the application of Prevail. Always apply Prevail tank-mix first, then wait 7 days before applying other herbicides. **Do not** apply to wheat or barley that has been undersown with forages or other companion crops. Cereal crops that are exposed to temperatures below 5°C up to 48 hours before or after application of Prevail may incur unacceptable crop injury. When grasses are stressed due to drought, heat, lack of fertility, flooding or prolonged cool temperature, control can be reduced or delayed since grasses are not actively growing.

8. Environmental Considerations

Prevail contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. **Do not** apply where run-off or erosion is likely to occur.

Do not apply within 15 m of fish-bearing waters, wetlands (potholes, sloughs, etc.) and wildlife habitat. Avoid drift onto other crops and non-target areas. **Do not** contaminate domestic or irrigation water, lakes, streams or ponds by the cleaning of equipment or the disposal of wastes. **Do not** use Prevail in the following areas: standing or flowing water, the inner banks or bottoms of irrigation ditches and in areas where surface water can runoff to adjacent croplands either planted or to be planted to sensitive crops.

Effects of Rainfall

Do not apply if rain is forecast within 6 hours.

Movement in Soil

Prevail A is not mobile in soil. MCPA is readily leached from the soil. Clopyralid is somewhat soluble in water, but is generally not mobile in soil under typical prairie conditions.

9. Grazing And Cropping Restrictions

Do not graze or cut for feed immature crops treated with Prevail. Straw from treated fields may not be used to feed livestock. **Do not** harvest grain until 60 days after treatment.

Re-cropping

Fields previously treated with Prevail can be seeded to wheat, barley, oats, rye, corn, flax, canola, sugarbeets, mustard, forage grasses, or should be summer-fallowed. **Do not** seed crops other than those listed above for at least one year following treatment. **Do not** seed to field peas for at least 10 months following treatment. Very dry soil conditions following application can result in a risk of injury to field peas grown in rotation. If severe drought conditions are experienced during the months of June to August inclusive in the year of application, delay seeding field peas an additional 12 months (total 22 months following application).

PRINCEP NINE-T (*simazine*)

HERBICIDE GROUP - 5

1. Formulation

water dispersible granule (90%).

2. Registered Mixes

None.

3. Crops

alfalfa and bird's-foot trefoil (established fields only).

4. Weeds Controlled

Grassy weeds

barnyardgrass, crabgrass, wild oats, yellow foxtail.

Broadleaved weeds

annual smartweeds, lady's-thumb, lamb's-quarters, purslane, ragweed, volunteer clovers, wild buckwheat and perennials starting from seed.

5. Weeds Suppressed

None.

6. When Used

alfalfa: apply to established alfalfa stands at least one year old. Make one application per year in the fall after the last cutting but prior to permanently frozen ground conditions.

bird's-foot trefoil: apply in the fall to stands at least one year old (September to November prior to freeze up). It may also be used in the seedling year if the stand has at least 5 plants/cm square and is at least 15 cm tall.

7. Application Considerations

Do not apply Gramoxone within one year after application.

8. Environmental Considerations

Do not mix, load or apply within 30 meters of any wells, lakes, streams, ponds or sink holes in order to avoid the potential of well or surface water contamination.

Effect of Rainfall

Good moisture conditions are required for good activity. Rainfall or irrigation is needed to move simazine into the root zone. The herbicide can be washed off plant foliage by rain.

Movement in the Soil

Simazine is more readily adsorbed on muck or clay soils than in soils of low clay and organic matter

content. The downward movement or leaching of simazine is limited by its low water solubility and adsorption to certain soil constituents. Tests have shown that for several months after application the greatest portion will be found in the surface 5 cm of soil. It has little, if any, lateral movement in soil but can be washed along with soil particles.

9. Grazing And Cropping Restrictions

Allow 30 days between application and grazing and 60 days between application and cutting for hay.

Recropping

Do not apply to the same field for more than three consecutive years. **Do not** plant any crop in the treated area in the same year except corn. When extended periods of dry weather occur during the year of treatment, there can be some injury to such succeeding crops as white beans, onions, peas, tomatoes and turnips. Injury is most likely to occur when the seedling crop is subject to periods of stress, e.g. during periods of abnormally hot, dry weather. Thorough tillage, including plowing should precede the planting of crops other than corn. Plow the land flat as opposed to setting the furrow on edge. Uneven application or application in excess of recommended rates will not injure corn, but may result in injury to succeeding crops other than corn.

Puma 120 Super (fenoxaprop-p-ethyl)

For Use in the Peace River Region Only

HERBICIDE GROUP - 1

1. Formulations

emulsifiable concentrate (120 g/L).

2. Registered Mixes

2,4-D, ester, Ally, Attain, Buctril M, Curtail M, Dichlorprop D, DyVel, DyVel DS, Estaprop, Express Pack, Frontline, Mecoprop, MCPA amine 500, MCPA ester 500, Prestige, Lontrel, Refine Extra, Refine Extra plus: Adapt, Buctril M or MCPA ester 500, Spectrum, Thumper, Triton, Trophy, Turboprop 600, Unity.

NOTE: refer to Puma 120 Super label and the label of the tank mix partner for specific instructions regarding registered crops, rates, weeds controlled, re-cropping considerations etc.

3. Crops

all spring and durum wheats, barley. **Do not** apply Puma 120 Super alone in barley. Always tank mix with a recommended broadleaf weed partner herbicide.

4. Weeds Controlled

barnyardgrass, green foxtail, yellow foxtail, wild oats.

5. Weeds Suppressed

None.

6. When Used

Crop

spring & durum wheat: apply from 1 leaf up to a maximum of 6 leaves on the main stem plus 3 tillers (Zadoks 11 to 16, 23); **barley** (Puma 120 Super Tank-mix only): Apply from the 1 leaf up to a maximum of 5 leaves on the main stem plus 2 tillers (Zadoks 11 to 15, 22)

Weeds

annual grassy weeds: wild oats, green foxtail and yellow foxtail, barnyard grass - apply when the weeds are in the 1 to 6 leaf stage of growth. Plants will be controlled up to the emergence of the third tiller; **broadleaved weeds:** when tank mixing with a broadleaved weed herbicide, consult the appropriate label for proper timing of application, weeds controlled and any possible re-cropping restrictions.

7. Application Considerations

Do not apply Puma 120 Super alone in barley. Always tank-mix with a recommended broadleaf herbicide. Initial crop injury in the form of shortening or discoloration may be observed after application. Such injury symptoms are more frequent and often more pronounced in spring barley than in durum wheat. This injury is most likely to occur when applications are made under certain stress conditions, such as cold and moist conditions or when applications are made past the 5 leaf, 2 tiller stage. Applications on spring barley should be avoided 2-3 days prior to or following cold temperatures (3°C or lower). If

another pesticide has already been applied, wait 7 days before applying Puma 120 Super. Following application of Puma 120 Super, a 4 day interval is required before applying another pesticide, except for those recommended on this label.

Note: Treatment at the 3-4 leaf stage of crops and weeds usually combines maximum crop tolerance and weed susceptibility. Under stressed conditions and/or heavy crop canopy, earlier application will result in improved grassy weed control.

Do not re-enter treated areas within 12 hours of application.

8. Environmental Considerations

Puma 120 Super is toxic to fish, daphnids, aquatic plants, terrestrial plants and some terrestrial invertebrates. Avoid contamination of aquatic systems during application. Contamination of aquatic areas from runoff may be reduced by including a vegetative strip (buffer zone) between the treated area and the edge of the water body. Buffer zones are required between the downwind point of direct application and the closest edge of sensitive terrestrial habitats (such as grasslands, forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands, and shrublands), and sensitive aquatic habitats (such as lakes, rivers, sloughs, ponds, coulees, prairie potholes, creeks, marshes, streams, reservoirs, and wetlands).

Required buffer zones are 3 metres from aquatic habitats for aerial and field sprayer application; 10 metres from terrestrial habitats for field sprayer application and 10 metres from terrestrial habitats for aerial application.

Avoid spray drift onto susceptible plants (e.g. tame oats, flowers, trees or shrubs) and non-target areas.

Effects of Rainfall

Do not apply if rain is expected within 1 hour.

Movement in Soil

Fenoxaprop-p-ethyl appears to undergo rapid hydrolysis in the soil.

9. Grazing And Cropping Restrictions

Do not graze treated fields prior to harvest. Pre-harvest interval: 65 days.

Pursuit ULTRA (sethoxydim plus imazethapyr)

For Use in the Peace River Region Only

HERBICIDE GROUP - 1,2

Pre-packaged Mix

Pre-packaged tank mix of Pursuit and Poast Ultra herbicides for use in the black- and grey-wooded soil zones to control multiple-flushing weeds and tough grasses in Clearfield canola and field peas. Follow label directions regarding tank mixes, rates, weeds controlled, timing, mixing instructions, etc. Also refer to write-ups on Pursuit and Poast Ultra in this Guide for other detailed information.

Pursuit (imazethapyr)

For Use in the Peace River Region Only

HERBICIDE GROUP - 2

1. Formulation

Pursuit aqueous solution (240 g/L).

2. Registered Mixes

None.

Surfactant

A non-ionic surfactant with a minimum of 80% active ingredient (such as Agral 90, Agsurf) at the rate of 0.25% v/v must be added to the spray solution.

3. Crops

Black and Grey Wooded Soil Zones

field peas, Clearfield canola only, seedling alfalfa for forage and seed, established alfalfa for seed.

Irrigated Brown Soil Zone

seedling alfalfa for forage and seed, established alfalfa for seed.

4. Weeds Controlled

Clearfield canola and field peas: cleavers, chickweed, green foxtail, redroot pigweed, shepherd's-purse, hemp-nettle, stinkweed, wild mustard, volunteer canola, green smartweed, wild buckwheat, wild oats (2 to 4 leaf stage); **seedling alfalfa for forage and seed:** smartweed, stinkweed, volunteer canola (except Clearfield canola), wild mustard, redroot pigweed; **established alfalfa for seed:** stinkweed, wild mustard, volunteer canola, redroot pigweed.

5. Weeds Suppressed

field peas: lamb's-quarters; **Clearfield canola:** lamb's quarter, volunteer wheat, volunteer barley; **seedling alfalfa:** green foxtail, lamb's quarter, shepherd's-purse, groundsel; **established alfalfa:** green foxtail.

6. When Used

Crop

apply early post emergence up to and including the 6th trifoliate leaf stage of **field peas**; 1 fully expanded leaf up to and including the 4 leaf stage of **Clearfield canola**; **established alfalfa for seed production:** apply in the 1 to 4 trifoliate leaf stage (alfalfa must be less than 30 cm in height) Do Not apply in the last year of the stand; for **seedling alfalfa** apply only in the year of establishment when alfalfa is in the 1 to 4 leaf stage. Stand must remain for 3 years or more.

Weeds

Apply post-emergence, up to the 4 true leaf stage of actively growing weeds. For control of wild oats, apply between the 2 to 4 leaf stage.

7. Application Considerations

Do not apply Pursuit herbicide to the same field two years in a row. **Do not** apply if freezing temperatures are forecast.

8. Environmental Considerations

Over-spray or drift to important wildlife habitats such as shelterbelts, water bodies, wetlands and woodlots, vegetated ditch banks, hedgerows & other cover on the edge of the field should be avoided. Leave a 15-meter buffer zone between the last spray swath and the edge of any of these habitats.

Effects of Rainfall

Rainfall within 6 hours of application may reduce activity.

Movement in Soil

Not leached appreciably.

9. Grazing And Cropping Restrictions

Do not harvest field peas for 60 days or Clearfield canola for 70 days following application.

Alfalfa may be grazed or harvested for forage 14 days after treatment. Field peas may be fed to livestock 30 days after application. Clearfield canola may NOT be grazed or cut for hay.

Re-cropping

Black, Grey Wooded and irrigated Brown soil zones: spring wheat, Clearfield canola, lentils, alfalfa and field peas may be planted the season following a Pursuit application. Barley may also be planted in the black and grey- wooded soil zones the season following application. Conduct a field bioassay (a test strip grown to maturity) the year before growing any other crop to field scale. In case of crop failure, replant only to Clearfield canola or field peas the year of application.

REFINE EXTRA, REFINE SG (*thifensulfuron methyl plus tribenuron methyl*)

HERBICIDE GROUP - 2

1. Formulation

Refine Extra: dry flowable toss-n-go bags; thifensulfuron methyl (50%) plus tribenuron methyl (25%).

Refine SG: soluble granule; thifensulfuron methyl (33.35%) plus tribenuron methyl (16.65%).

2. Registered Mixes

Refine Extra, Refine SG may be tank mixed with numerous herbicides including: Accord, Assert, Attain, Avenge 200-C, Axial, Banvel II, Curtail M, Horizon, Lontrel, Puma 120 Super, 2,4-D, MCPA. Read the product label and the label of the appropriate tank mix partner for specific details on registered crops, rates,

mixing instructions. Follow the label with the most stringent restrictions and precautions.

A recommended surfactant (such as Agral 90, Agsurf, or Citowett Plus) must be added to all applications when Refine Extra is used alone, or tank mixed with MCPA or 2,4-D only. Merge surfactant should be added to all tank mixes with Accord herbicide and Score adjuvant should be added to the Horizon tank mix.

3. Crops

wheat (spring, durum, winter), barley, oats, the following seedling and established grasses for forage and seed production: brome grass (meadow, smooth), creeping red fescue, Kentucky bluegrass (established only), orchardgrass, tall fescue, wheatgrass (crested, intermediate, pubescent, tall, slender, streambank, northern, western).

4. Weeds Controlled

Refine Extra, Refine SG

chickweed, common groundsel, corn spurry, cow cockle, flixweed, green smartweed, hemp-nettle, kochia, lady's-thumb, lamb's-quarters, narrow-leaved hawkbeard, redroot pigweed, Russian thistle, shepherd's-purse, stinkweed, tartary buckwheat, volunteer canola (excluding Clearfield), wild buckwheat (Refine SG), wild mustard.

Refine Extra plus MCPA amine or ester or 2,4-D amine or ester

ball mustard, burdock (seedling), chickweed, cocklebur*, common groundsel, cow cockle, flixweed, green smartweed, hemp-nettle, kochia, lady's-thumb, lamb's-quarters, mustards (hare'-ear, Indian, tumble, wild, wormseed), narrow-leaved hawkbeard, prickly lettuce, redroot pigweed, Russian pigweed, Russian thistle, shepherd's-purse, stinkweed, stork's-bill, sweetclover (plus 2,4-D only), tartary buckwheat, volunteer canola (including Clearfield), volunteer sunflower, wild buckwheat (Refine SG), wild radish.

Note: Weed susceptibility is determined by stage of growth at application and recommended rate. Refer to appropriate labels to determine timing and rate.

5. Weeds Suppressed

Canada thistle, sowthistle, round-leaved mallow, scentless chamomile, cleavers, stork's-bill, toadflax (less than 15 cm tall).

6. When Used

Refine Extra, Refine SG alone

Crop

cereals: apply post-emergence when the crop is in the two-leaf to flag leaf (shot blade) stage of growth, (prior to head emergence) but before the crop canopy will prevent thorough coverage of target weeds; **established grasses for forage or seed production:** apply post-emergence.

Weeds

Apply to young, actively growing weeds that are less than 10 cm in height or diameter and before the canopy closes.

Specific Weed Recommendations

Apply with a recommended surfactant when weeds are actively growing. **Canada thistle and sowthistle:** post-emergence when the majority of the thistles have emerged. For best top-growth control, apply when thistles are no larger than 15 cm tall before bud stage and before crop canopy prevents thorough coverage of thistles. A single application will effectively inhibit the ability of emerged thistles to compete with the crop. Later emerging thistles will not be controlled; **chickweed:** apply when small (1-6 leaf). Chickweed emerging after application will not be controlled; **wild buckwheat:** apply in the cotyledon to 1-3 leaf stage. Under stress conditions, such as dry weather, control may be reduced. Large plants may re-grow after treatment; **round-leaved mallow:** apply in the 2-6 leaf stage (10-12 cm tall). Mallow will be stunted, but overall populations may not be reduced; **cleavers:** apply at 1 to 3 whorl stage; **toadflax:** Less than 15 cm in height. Control program should include frequent tillage and chemical application.

7. Application Considerations

Do not apply to crops underseeded to legumes or grasses as injury to forage may result. **Do not** apply more than 20 g per hectare of Refine Extra or 30 per hectare Refine SG in one year.

8. Environmental Considerations

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders and woodlots should be avoided. Leave a

15-meter buffer zone between the last spray swath and the edge of any of these habitats. **Do not** contaminate irrigation water. **Do not** apply to land where tail water will be used to irrigate cropland.

Effects of Rainfall

Avoid applications to weeds when rainfall is threatening. Rainfall within 4 hours will result in reduced weed control with Refine Extra. Up to 25 mm of rain beginning 1 hour or more after spraying will not reduce the effectiveness of Refine SG.

Movement in the Soil

There is little movement in the soil and it disappears from the soil rapidly but do not use on highly variable soils that have large gravelly or sandy areas, eroded knolls, or calcium deposits.

9. Grazing And Cropping Restrictions

Wheat, barley, oats and forage crops must not be grazed by or fed to livestock within 7 days of application.

Re-cropping

Only canola, flax, lentils and alfalfa may be planted two months after an application. Any crop may be planted in the year following application.

REFINE M-DF, REFINE M-SG (thifensulfuron methyl plus tribenuron methyl plus MCPA ester)

HERBICIDE GROUP - 2, 4

Pre-packaged Mix

A pre-packaged mix of Refine dry flowable or soluble granules plus MCPA ester for broadleaved weed control in spring, durum wheat, barley and oats. Follow label directions regarding tank mixes, rates, weeds controlled, timing, mixing instructions, etc. Also refer to write-ups on Refine Extra, Refine SG and MCPA in this Guide for other detailed information.

REGLONE DESICCANT (diquat)

HERBICIDE GROUP - 22

1. Formulation

aqueous solution (240 g/L).

2. Registered Mixes

None.

Apply with the surfactant Agral 90.

3. Crops

Desiccation of canola, field peas, alfalfa, bird's-foot-trefoil, red and white Dutch clover and for control of corn spurry in oats.

4. Weeds Controlled

Kills most annual weeds present at the time of application. Perennial weeds (top-growth only). Provides non-selective control of green vegetation and crop desiccation harvest aid.

5. Weeds Suppressed

Not applicable.

6. When Used

Warning: The user must be aware that this product accelerates the natural process of crop maturity. In cases of adverse weather conditions such as heavy rain, hail or strong wind, the resultant damage to your crop may therefore be enhanced, taking account that certain crops are more fragile than others.

oats (corn spurry control): application will burn corn spurry and give a temporary burning of the exposed oats leaves, but the plants quickly recover. **Do not** use any surfactant.

Crop desiccation

canola: apply when 60 - 75% of the seeds have turned from green to brown. Pod and stem kill takes place in 7-10 days after application, eliminating the need to swath, thus facilitating straight combining of the standing crop.

NOTE: ONLY USE ON ARGENTINE VARIETIES TO FACILITATE A HARVEST OF LODGED CROPS. LOSSES CAN OCCUR DUE TO POD DROP AND POD SHATTER

FROM HANDLING OR IF UNFAVOURABLE WEATHER CONDITIONS OCCUR. **Do not** apply when the crop is before or past the recommended stage of maturity. Commence combining no later than 14 days after application.

field peas: Timing is vital as premature desiccation will result in yield loss. Apply when the lower pods of most plants are ripe, dry, translucent and shrunken, with enclosed seeds detached from the pods. Middle pods will be somewhat shrunken and leathery, and the seed will split when squeezed. Desiccation will dry out upper pods and green plant growth, leaving bottom and middle pods with the highest quality seed. With determinate varieties, Reglone Desiccant should be applied when the top and upper middle pods are somewhat shrunken and leathery and seeds in these pods split when squeezed. The lower middle and bottom pods are ripe and dry, translucent and shrunken, with seeds enclosed in these pods detached.

alfalfa, bird's-foot trefoil, red clover and white clover grown for seed: apply no more than 7 days prior to harvest to prevent seed loss from shattering. **Do not** use Reglone Desiccant if a residual herbicide has been used on the legumes within the past 12 months.

7. Application Considerations

Precaution: excessive exposure to diquat may cause a health hazard. Carefully follow label directions to reduce exposure. Effectiveness of the treatment may be enhanced when application is made on cloudy days or prior to periods of darkness.

8. Environmental Considerations

DRIFT OF THIS PRODUCT OUTSIDE THE IMMEDIATE FIELD AREA MAY RESULT IN DAMAGE TO CROPS, SHELTERBELTS, ORNAMENTAL PLANTS, LAWNS, GRAZING AREAS, WILDLIFE COVER, WETLANDS, AND OTHER DESIRABLE GROWTH. **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.

SINCE HERBICIDE APPLICATION MAY DAMAGE THE HABITAT OF MIGRATORY BIRDS AND OTHER WILDLIFE SPECIES, **Do not** USE AERIAL APPLICATION IN

FIELDS WHERE WETLANDS OR OTHER GOOD WILDLIFE COVER MIGHT BE OVERSPRAYED; THIS INCLUDES SLOUGHS AND DRY SLOUGH MARGINS IN WESTERN CANADA. USE GROUND SPRAYERS AND LEAVE AN UNSPRAYED MARGIN OF 15 M AROUND THE BORDER OF ALL SLOUGHS.

Effects of Rainfall

Once the spray solution has dried on the plant tissue, rain will not reduce effectiveness.

Movement in the Soil

None.

9. Grazing and Cropping Restrictions

Crop waste remaining after harvest (e.g. peas vines, alfalfa stems, etc.) may be used as a feed supplement for livestock.

Re-cropping

no restrictions.

RENEGADE (*glyphosate*)

See page: 171

RIVAL (*trifluralin*)

See page: 127, 129

ROUNDUP ORIGINAL, ROUNDUP WEATHERMAX, ROUNDUP TRANSORB, ROUNDUP ULTRA 2 (*glyphosate*)

See page: 171

Rustler (*glyphosate plus dicamba*)

HERBICIDE GROUP - 9,4

1. Formulations

water soluble liquid - glyphosate (132 g/L) plus dicamba (60 g/L).

2. Registered Mixes

2,4-D

3. Crops

Chemical fallow, pre-seeding to cereals and field corn.

4. Weeds Controlled

Grassy weeds

Volunteer cereals, downy brome, Persian darnel, wild oats.

Broadleaved weeds

cow cockle, flixweed, green foxtail, kochia, lady's-thumb, lamb's-quarters, redroot pigweed, Russian thistle, smartweed, stinkweed, volunteer canola (not glyphosate tolerant varieties), wild buckwheat, wild mustard.

5. Weeds Suppressed

foxtail barley.

6. When Used

Grassy weeds

Apply anytime between emergence and heading; **foxtail barley**: before initiation of seed head or browning of lower leaves.

Broadleaved weeds

Apply before weeds are 15 cm tall; **wild buckwheat**: apply in the 1-4 leaf stage.

7. Application Considerations

Do not allow spray mist to drift since even minute quantities of spray can cause severe damage or destruction to nearby crops, plants or other areas

on which treatment is not intended. **Do not** apply during wind conditions, as spray drift may occur.

For **field corn**, apply to medium to fine textured soils containing more than 2.5% organic matter. **Do not** use on sandy or sandy loam soils.

8. Environmental Considerations

Rustler is highly toxic to aquatic and terrestrial plants. A buffer zones of 15 metres is required between the downwind point of direct application and the closest edge of sensitive terrestrial habitats including forested areas, shelter belts, woodlots, hedgerows, pastures, rangelands, and shrublands. A buffer zone of 15 metres is required between the downwind point of direct application and the closest edge of sensitive aquatic habitats including sloughs, coulees, ponds, prairie potholes, lakes, rivers, streams, reservoirs and wetlands, and wildlife habitat at the edge of these bodies of water.

Effects of Rainfall

Heavy rainfall within 2 hours may wash the chemical off the foliage and repeat treatment may be required. Rainfall within 6 hours may reduce effectiveness.

Movement in the Soil

The amount of leaching is very low.

9. Grazing And Cropping Restrictions

Do not graze or harvest treated areas until plants have turned brown and started to deteriorate.

Re-cropping

Do not seed a crop for at least 3 weeks after application. Certain broadleaved crops such as lentils, peas, canola and flax can be injured by a pre-seeding application with this product and so should not be planted to a field receiving this treatment.

SELECT (*clethodim*)

See page: 136

SENCOR (*metribuzin*)

HERBICIDE GROUP - 5

1. Formulations

Sencor 480 F - flowable (480 g/L)

Sencor 75 DF - (75%) water dispersable granules

2. Registered Mixes

spring wheat, barley: MCPA amine 500, 2,4-D amine 500, Banvel II, Target.

field peas: MCPA Na salt, Edge, Treflan.

3. Crops

spring wheat, barley (Klondike, Leduc, and Johnston varieties are less tolerant than other varieties), winter wheat (Norstar variety only), field peas.

Underseeding

Do not underseed.

4. Weeds Controlled

Weed control is rate dependent. Refer to the label.

spring wheat, barley: ball mustard, common chickweed, common groundsel, corn spurry, green smartweed, hemp-nettle, henbit, lady's-thumb, lamb's-quarters, night flowering catchfly, redroot pigweed, Russian thistle, stinkweed, tartary buckwheat, volunteer non-triazine tolerant canola, wild mustard, wormseed mustard; **winter wheat (Norstar only):** downy brome, flixweed, shepherd's purse, stinkweed.

5. Weeds Suppressed

Russian thistle, volunteer barley in field peas in tank mix with Edge herbicide.

6. When Used

spring wheat, barley: apply at the 2 to 5 leaf stage. Sencor plus MCPA or 2,4-D amine - apply at the 3 to 5 leaf stage. Sencor plus Banvel II - apply at the 2 to 3 leaf stage of barley or the 2 to 4 leaf stage of wheat. Sencor plus Target - apply at the 2 to 3 leaf stage of barley or the 2 to 5 leaf stage of spring wheat.

winter wheat: apply in late fall (October, November) at secondary root initiation (usually after the 3 leaf stage).

field peas: apply before pea vines are 15 cm long and

after weeds have emerged and are small (less than 5 cm in height or diameter). **Do not** use if soil is less than 4% organic matter. Sencor may be used as a single post-emergence application or as a split application. **Do not** apply within 3 days after periods of cool, wet, or cloudy weather as crop injury may occur.

7. Application Considerations

Pre-plant Incorporation (Fall and Spring)

Cultivate to destroy existing weeds before Sencor plus tank-mix partner application. When applying to stubble field, chop and thoroughly mix crop residue into soil to a depth of 10-15 cm. Disc type implements provide the best results. To avoid concentration of wild oat seed below the treated layer, do not plow (moldboard). Tank-mixes may be applied as a broadcast spray and incorporated into the soil in two different directions

First incorporation must be done within 24 hours after application. For fall application, the second incorporation may be done in the spring at the time of seedbed preparation. It is preferred to do both incorporations in the fall followed by shallow tillage (disc or vibrashank cultivator operated at 5-8 cm deep) in the spring prior to planting.

Post-Emergent Application

Crop must be planted at least 5 cm below the soil surface. **Do not** tank-mix with other pesticides, wetting agents, or surfactants. Sencor may be applied when crop is wet with dew, but weed control may be reduced if there is rainfall within 6 hours after application. Temporary (7-10 days) lightening in crop colour and occasional slight reduction in crop height may be observed, especially if frost or abnormally high temperatures occur within 1 to 2 days of application. If frost occurs, allow 4 to 5 days for crop to recover before application. Allow a 4 to 5 day interval between application and use of other pesticides such as wild oat herbicides.

8. Environmental Considerations

Metribuzin has properties that may result in ground water contamination. Application in areas where soils are permeable or coarse and ground water is near the surface could result in ground water contamination. Buffer zones of from 0 to 10 metres (depending on application equipment and water depth) are required between the point of direct application and the closest downwind edge

of sensitive terrestrial habitats (such as grasslands, forested areas, woodlots, hedgerows, pastures, rangelands, and shrublands), sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs, and wetlands), and estuarine/marine habitats.

Effects of Rainfall

Rainfall within 6 hours after application may reduce weed control.

Movement in the Soil

Although metribuzin is quite soluble in water and therefore quite mobile, it is bound by organic matter and clay. Net lateral movement is limited.

9. Grazing Restrictions

Do not apply within 60 days of harvest of cereals or 70 days for field peas. **Do not** graze or feed cereals to livestock within 30 days of application or 70 days for field peas.

Re-cropping

Rotation crops such as onions, celery, peppers, cole crops, lettuce and spinach, sugar beets, table beets, turnips, pumpkin and squash, cucumbers and melons, tobacco, and non-triazine tolerant canola are sensitive to Sencor and may be injured if planted in soil treated during the year of application or the following crop year. Fall seeded or cover crops such as wheat, oats, and rye may be injured when seeded within the same season as application.

SOLO (*imazamox*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 2

1. Formulation

water dispersible granule - imazamox (70%)

2. Registered Mixes

None. Must be applied with Merge surfactant.

3. Crops

Clearfield canola (imazamox tolerant varieties only), field peas.

4. Weeds Controlled

Grassy weeds

barnyardgrass, green and yellow foxtail, Persian darnel, volunteer barley, volunteer oats, volunteer spring and durum wheat (non-imazamox tolerant), wild oats.

Broadleaved weeds

cow cockle, green smartweed, redroot pigweed, shepherd's-purse, stinkweed, sweetclover, volunteer canola (non-imazethapyr and non imazamox tolerant varieties only), wild mustard.

5. Weeds Suppressed

Grassy weeds

Japanese brome grass

Broadleaved weeds

cleavers, kochia, lamb's-quarters, wild buckwheat.

6. When Used

Crop

Apply when Clearfield canola is in the 2 to 6-leaf stage; apply when field peas are in the 1 to 6 leaf stage.

Weeds

Apply to broadleaved weeds from the cotyledon up to the 4-leaf stage. Apply to grassy weeds from the 1-4 true leaf stage up until early tillering.

7. Application Considerations

Avoid spray overlap as yield reduction may result. Make only one application per year.

8. Environmental Considerations

This product is highly toxic to non-target plants. Avoid overspraying and applying in situations when drift may occur. Leave a buffer zone of 11 metres between the last spray swath and sensitive areas. Areas to be buffered include shelterbelts, hedgerows, wetlands, woodlots, vegetated ditch banks, ponds, streams, potholes, sloughs, and other cover on the edges of fields.

Effects of Rainfall

Do not apply if rain is forecast during or soon after application.

Movement in Soil

No appreciable leaching.

9. Grazing And Cropping Restrictions

Do not graze the treated field peas or canola or cut for hay within 20 days of application.

canola and field peas can be harvested 60 days after application.

Re-cropping

The following crops may be grown safely the year following an application: canary seed, field peas, imazethapyr tolerant canola (CLEARFIELD canola), non-imazethapyr and non imazamox tolerant canola (non-CLEARFIELD canola), lentils, spring wheat, durum wheat, spring barley, oats, flax. Conduct a field bioassay (a test strip grown to maturity) the year before growing any crop other than those listed.

SPECTRUM (*florasulam plus clopyralid plus MCPA*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 2,4

1. Formulation

Tank mix containing: florasulam suspension concentrate (50 g/L) plus emulsifiable concentrate clopyralid (50 g/L) plus MCPA ester (280 g/L).

2. Registered Mixes

Assert 300 SC, Puma 120 Super, Everest. Refer to Spectrum label and label of tank mix partner for instructions on registered crops, weeds controlled, rates and application considerations. **Do not** use these tank mixes on oats or grasses grown for seed.

3. Crops

spring wheat, durum wheat, barley, oats, the following seedling and established grasses (**seed production only**): chewings fescue, creeping red fescue, crested wheatgrass, hard fescue, hybrid brome grass, intermediate wheatgrass, meadow brome grass, perennial ryegrass, smooth brome grass, tall fescue, timothy.

Do not underseed to legumes.

4. Weeds Controlled

Broadleaved weeds

annual sowthistle, Canada thistle, chickweed, cleavers, dandelions (seedlings; overwintered rosettes <15 cm), flixweed (spring rosettes only), hemp-nettle, perennial sowthistle (top-growth only)*, lamb's-quarters, redroot pigweed, stinkweed, shepherd's-purse, smartweed, stork's-bill, volunteer canola**, wild buckwheat, wild mustard.

* Control not observed until a minimum of 40 days after treatment.

** Including Roundup Ready, Liberty-Link and Smart herbicide-tolerant canola varieties.

5. Weeds Suppressed

dandelion (over-wintered rosettes >15 cm; mature plants).

6. When Used

Crop

Apply to actively growing cereals from the 2 to 6 leaf stage. Apply to labeled seedling or established forage grasses (seed production only) when weeds are small and actively growing.

Weeds

Apply when weeds are actively growing in the 2 to 4 leaf stage. Only weeds emerged at the time of treatment will be controlled.

7. Application Considerations

Do not apply tank-mix directly to, or otherwise permit it to come in direct contact with susceptible crops or desirable plants including alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers, tomatoes. **Do not** apply during periods of dead calm or when winds are gusty.

8. Environmental Considerations

Spectrum contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. A buffer zone of 30 metres is required between the downwind edge of the boom and the closest edge of sensitive terrestrial habitats including forested areas, shelterbelts, woodlots, hedgerows, and shrublands. A buffer zone of 5 metres is required between the downwind edge of the boom and the closest edge of sensitive aquatic habitats including sloughs, ponds,

prairie potholes, lakes, rivers, streams, wetlands and wildlife habitats at the edge of these bodies of water.

Effects of Rainfall

Do not apply if rain is forecast within 6 hours of application.

Movement in Soil

This product has potential to leach. **Do not** apply excessive irrigation.

9. Grazing And Cropping Restrictions

Cereals

Do not permit lactating dairy animals to graze fields within 7 days after application. **Do not** harvest the treated mature crop within 60 days after application.

Forage grasses (seed production)

Do not cut treated fields for forage/hay or graze the treated grasses.

Re-cropping

Previously treated fields can be seeded the following year to barley, canola, oats, peas, or wheat or fields can be summerfallowed.

THUMPER (*bromoxynil plus 2,4-D*)

See page: 135

SUNDANCE (*sulfosulfuron*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 2

1. Formulation

water dispersible granule (75%).

2. Registered Mixes

2,4-D ester, Pardner, MCPA ester, Bucril M. Refer to the Sundance label and label of tank mix partner to determine additional weeds controlled and full use directions.

Apply with Merge surfactant.

3. Crops

spring wheat and the following durum wheat varieties: Kyle, Plenty, Avonlea, Morse.

Do not underseed to legumes.

4. Weeds Controlled

Grassy weeds

foxtail barley, wild oats.

Broadleaved weeds

chickweed, cleavers, redroot pigweed, stinkweed, volunteer canola (including glyphosate resistant canola), wild mustard.

5. Weeds Suppressed

Grassy weeds

barleygrass, green foxtail, quackgrass.

Broadleaved weeds

dandelion, perennial sowthistle.

6. When Used

Crop

apply before emergence of the 4th tiller of wheat.

Weeds

apply to wild oats up to the 6 leaf stage and no later than the 3 tiller stage. Apply to seedling broadleaved weeds or to perennial weeds during periods of active growth prior to flowering.

7. Application Considerations

Use only in the Grey Wooded soil zone (Peace River Region) with organic matter of 4 % or greater. Minute quantities of this product can cause severe damage or destruction to non-target plants. The likelihood of injury occurring is greatest when winds are gusty or when other conditions, including lesser wind velocities, will allow spray drift to occur. Do not allow spray or spray mist to drift onto adjacent sensitive crops or onto land that will be rotated to sensitive crops in the future.

8. Environmental Considerations

Maintain a buffer zone of 30 metres between the last spray swath and the edge of sensitive areas such

as shelterbelts and woodlots. To protect aquatic habitats, a buffer zone of 6 metres should be observed between the last swath and the edge of sensitive areas such as wetlands or ponds.

Effects of Rainfall

Rainfall within 2 hours may reduce activity.

Movement in Soil

No appreciable leaching.

9. Grazing And Cropping Restrictions

Re-cropping

Sundance herbicide-treated wheat fields with soil organic matter of 4 percent or greater may be rotated to the following crops the year after treatment: all wheat varieties including durum, canola, barley, peas, and flax.

In areas where fields may have been affected by extreme drought, or drought conditions and high soil pH (pH 7.5 and greater), between application and soil freeze up, injury to crops other than wheat or imazethapyr tolerant canola i.e. Clearfield canola may be observed within the recommended plant back timing interval. FOR FIELDS HAVING THESE CONDITIONS, Do not PLANT CANOLA, BARLEY, PEAS, AND FLAX FOR AT LEAST 22 MONTHS AFTER APPLICATION. FOR CROPS NOT LISTED ABOVE, A FIELD BIOASSAY MUST BE CONDUCTED THE YEAR PRIOR TO GROWING THE CROP OF INTEREST TO CONFIRM CROP SAFETY.

SWORD, TARGET, TRACKER SP (MCPA plus mecoprop plus dicamba)

HERBICIDE GROUP - 4

1. Formulation

MCPA (present as amine salts) (275 g/L)

mecoprop-P (present as amine salts) (62.5 g/L)

dicamba (present as amine salts) (62.5 g/L)

2. Registered Mixes

Horizon, Sencor. Refer to labels for registered crops and complete use directions.

3. Crops

spring wheat, durum wheat, winter wheat, barley, oats, stubble fields, summerfallow.

Target and Sword may also be used on the following **seedling grasses** grown for forage (in year of establishment): creeping red fescue, crested wheatgrass, intermediate wheatgrass, meadow foxtail, orchardgrass, smooth brome grass, timothy; and the following **established forage grasses**: timothy, orchardgrass, meadow fescue, Kentucky bluegrass, meadow foxtail, creeping red fescue, meadow brome grass, smooth brome grass, tall fescue and intermediate, crested, streambank, slender, pubescent, tall and western wheatgrass.

Do not use on forages grown for seed production.

Do not underseed to legumes.

4. Weeds Controlled

Broadleaved weeds

annual sow-thistle, cleavers, common ragweed, corn spurry, cow cockle, flixweed, green smartweed, hemp-nettle, kochia, knotweed, lady's-thumb, lamb's-quarters, mustards (wild, ball, tall, wormseed, yellow), night flowering catchfly, prostrate pigweed, redroot pigweed, Russian thistle, shepherd's-purse, stinkweed, tartary buckwheat, volunteer buckwheat, volunteer canola, volunteer sunflower, wild buckwheat.

5. Weeds Suppressed

Canada thistle, field bindweed, hedge bindweed, perennial sowthistle.

6. When Used

Crop

Apply to spring and durum wheat and oats in the 2 to 5 leaf stage. Apply to winter wheat in the spring before crop is more than 30 cm high (top leaf extended). Apply to barley in the 2 to 4 leaf stage. Apply to seedling forage grasses in the 2 to 4 leaf stage and to established forage grasses up to the shot blade stage.

Weeds

Apply to actively growing weeds in the 2 to 3 leaf stage. **Cleavers**: apply in the 1-2 whorl stage; **Hemp-nettle**: apply before second pair of true leaves; **Russian thistle**: apply when less than 5 cm in height.

7. Application Considerations

Do not apply when the wind is blowing towards a nearby sensitive crop, garden, terrestrial habitat (such as shelterbelts) or aquatic habitat. Susceptible crops include grape, tomato, tobacco, sugar beet, sunflower, beans, soybean, turnip, cauliflower and cabbage as well as many other field, vegetable, ornamental and fruit crops.

8. Environmental Considerations

Do not apply within 15 metres of a wetland area including streams, rivers, lakes, ponds, wetlands, sloughs, irrigation waters, vegetated ditch banks and other water used by livestock or for domestic purposes.

Effects of Rainfall

Rainfall within 3 hours will reduce activity.

Movement in Soil

Relatively mobile in soil.

9. Grazing And Cropping Restrictions

Do not graze the crop or use for feed within 7 days of application. Observe a minimum interval to harvest of 60 days after treatment.

Re-cropping

No labeled restrictions.

TARGET (MCPA plus mecoprop plus dicamba)

See page: 203

THUMPER (bromoxynil + 2,4-D)

See page: 135

TOPSIDE (MCPB plus MCPA)

See page: 149

TOUCHDOWN iQ (glyphosate)

See page: 171

TRACKER SP (MCPA plus mecoprop plus dicamba)

See page: 203

TREFLAN (trifluralin)

See page: 127, 129

TRITON C (thifensulfuron methyl plus tribenuron methyl plus quinclorac)

For Use in the Peace River Region Only

HERBICIDE GROUP - 2, 4

1. Formulation

quinclorac - (51.55%)

thifensulfuron methyl - (10.30%)

tribenuron methyl - (5.15 %)

2. Registered Mixes

Horizon, Puma 120 Super.

Apply with Merge adjuvant.

3. Crops

spring wheat, durum wheat, spring barley (grown for feed purposes only). **Do not** use on Leger barley or Belvedere wheat.

Do not underseed to legume or grass forages.

4. Weeds Controlled

annual sowthistle, ball mustard, chickweed, cleavers(1-4 whorls), corn spurry, cow cockle, flixweed, green smartweed, common groundsel, hemp-nettle, kochia, lady's-thumb, lamb's-quarters, narrow-leaved hawk's-beard, redroot pigweed, Russian thistle, shepherd's-purse, stinkweed, tartary buckwheat, volunteer canola (not imazamox and imazethapyr tolerant canola varieties, volunteer sunflower, wild buckwheat, wild mustard.

5. Weeds Suppressed

Canada thistle, perennial sowthistle, round-leaved mallow, scentless chamomile, stork's-bill, toadflax.

6. When Used

Crop

Apply in the 2 to 5 leaf stage.

Weeds

Apply to young, actively growing weeds that are less than 10 cm in height or diameter and before the canopy closes.

Specific Weed Recommendations

Apply with a recommended surfactant when weeds are actively growing. **Canada thistle and sowthistle:** post-emergence when the majority of the thistles have emerged. For best top-growth control, apply when thistles are no larger than 15 cm tall before bud stage and before crop canopy prevents thorough coverage of thistles. A single application will effectively inhibit the ability of emerged thistles to compete with the crop. Later emerging thistles will not be controlled; **chickweed:** apply when small (1-6 leaf). Chickweed emerging after application will not be controlled; **wild buckwheat:** apply in the cotyledon to 1-3 leaf stage. Under stress conditions, such as dry weather, control may be reduced. Large plants may re-grow after treatment; **round-leaved mallow:** apply in the 2-6 leaf stage (10-12 cm tall). Mallow will be stunted, but overall populations may not be reduced; **cleavers:** apply at 1 to 3 whorl stage; **toadflax:** Less than 15 cm in height. Control program should include frequent tillage and chemical application.

7. Application Considerations

Do not use on highly variable soils that have large gravelly or sandy areas, eroded knolls or calcium deposits.

Do not apply, drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.

Do not apply to crops underseeded to legumes or grasses as injury to forage may result.

Do not apply more than 97 g per hectare of Triton C per year. Weeds hardened off by cold weather or drought stress may not be adequately controlled or suppressed.

8. Environmental Considerations

Overspray or drift to important wildlife habitats such as shelterbelts, wetlands, sloughs or dry slough borders and woodlots should be avoided. Leave a 15-meter buffer zone between the last spray swath and the edge of any of these habitats. **Do not** contaminate irrigation water. **Do not** apply to land where tail water will be used to irrigate cropland.

Effects of Rainfall

Avoid applications to weeds when rainfall is threatening. Rainfall within 6 hours will result in reduced weed control.

Movement in the Soil

There is little movement in the soil but do not use on highly variable soils that have large gravelly or sandy areas, eroded knolls, or calcium deposits.

9. Grazing And Cropping Restrictions

Spring wheat, durum, or spring barley may not be grazed or fed to livestock within 77 days of application. Spring barley may not be grazed or fed to livestock within 80 days of application when tank mixed with Puma 120 Super. **Do not** apply within 77 days of harvest of spring wheat or durum or 80 days of harvest of spring barley.

Re-cropping

In the event of crop failure, spring wheat, durum wheat and spring barley may be reseeded. **Do not** seed canola or field peas for a minimum of 10 months following application; **Do not** seed flax

or lentils for a minimum of 22 months. Flax and lentils on lighter soils with low organic matter or under dry conditions may experience some crop injury. Under these conditions, the minimum re-cropping interval should be extended by 12 months. Other crops should only be planted after a field bioassay has shown that it is safe to do so. A successful field bioassay means growing to maturity a test strip of the crop(s) intended for production the following year.

Do not use on land where potatoes or vegetables are part of the rotation.

TROPHY (*fluroxypyr plus MCPA ester*)

For Use in the Peace River Region Only

HERBICIDE GROUP - 4

1. Formulations

Pre-packaged tank mix containing

Trophy A - fluroxypyr emulsifiable concentrate (180 g/L)

Trophy B - MCPA ester emulsifiable concentrate (500 g/L)

2. Registered Mixes

Achieve Liquid, Horizon, Assert 300SC, Puma 120 Super.

3. Crops

spring and durum wheat, spring barley.

Do not underseed to legumes.

4. Weeds Controlled

annual sunflower, common burdock, cleavers (1-4 whorl), cocklebur, flixweed, hemp-nettle (2-6 leaf), kochia, lamb's-quarters, stinkweed, mustard (except dog & green tansy), prickly lettuce, ragweed, redroot pigweed (1-4 leaf), shepherd's-purse, volunteer canola, volunteer flax, (1-12 cm), vetch, wild radish.

5. Weeds Suppressed

green smartweed, stork's-bill (1 to 8 leaf stage), wild buckwheat (1 to 4 leaf stage).

6. When Used

Crops

Apply between the 3 leaf and the flag leaf stage. Application before the 3 leaf stage of wheat and barley may cause severe twisting of leaves and leaf, stem and head deformities which may reduce yield up to 10%. **Do not** apply later than the flag-leaf stage.

Weeds

Apply when most weeds are in the 2 - 4 leaf stage unless indicated otherwise above under WEEDS CONTROLLED/SUPPRESSED.

7. Application Considerations

Frost before application (3 days) or shortly after (3 days) may reduce weed control and crop tolerance. Weed control may be reduced during stress conditions, e.g., drought, heat or cold stress, or if weeds have initiated flowering, or if heavy infestations exist. Avoid spraying near sensitive crops such as alfalfa, edible beans, canola, flowers and ornamentals, lentils, lettuce, peas, potatoes, radishes, soybeans, sugar beets, sunflowers or tomatoes.

8. Environmental Considerations

Trophy is toxic to fish. Keep out of lakes, ponds and streams. Overspray or drift to important wildlife habitats, such as ponds, wetlands, streams, woodlots and shelterbelts, must be avoided. A 15 metre buffer zone should be established between areas to be sprayed and aquatic environments or terrestrial habitats listed above. **Do not** contaminate water when disposing of equipment wash waters. **Do not** contaminate irrigation ditches or water used for domestic purposes.

Effects of Rainfall

Do not apply if rain is expected within 1 hour.

Movement in Soil

MCPA and fluroxypyr bind lightly to soil organic matter but do not bind readily to sand, silt or clay. Due to their relatively short half-life, they rarely move deeper than 15 cm deep in soil.

9. Grazing And Cropping Restrictions

Do not harvest the treated mature crop within 60 days after application. Allow 7 days between application of product and grazing/cutting of hay.

Re-cropping

Fields previously treated with Attain herbicide tank mix can be seeded the following year to: barley, canola, flax, forage grasses, lentils, mustard, oats, peas, rye and wheat or fields can be summerfallowed.

TROPOTOX PLUS (MCPB plus MCPA)

See page: 149

TURBOPROP, TURBOPROP 600 (2,4-D plus dichlorprop)

See page: 154

VANTAGE PLUS MAX (glyphosate)

See page: 171

VELPAR L & DF (hexazinone)

HERBICIDE GROUP - 5

1. Formulations

Velpar L : water dispersible solution (240 g/L).

Velpar DF: water dispersible granule (75%).

2. Registered Mixes

no tank mixes recommended.

3. Crops

established alfalfa (seed production only).

4. Weeds Controlled

dandelion, sowthistle, quackgrass, narrow-leaved hawk's-beard*, scentless chamomile*.

* use highest recommended rate

5. Weeds Suppressed

None.

6. When Used

Apply only to **dormant alfalfa** (late fall or early spring) that has been established for 18 months. If fall irrigation and/or burning is to be carried out, do not apply until completion of these operations.

7. Application Considerations

Do not use on gravelly or rocky soils, or soils that are sandy or coarse textured.

Do not apply to sites whose physical state will prevent penetration of the herbicide into the root zone of the target species. This includes frozen and snow-covered soils, sites that are water-saturated, or sites in which the water table is close to the surface. To allow sufficient soil penetration, do not apply close to freeze up.

Do not treat fields that are to be planted to other crops within 24 months.

8. Environmental Considerations

Do not apply by ground within 50 meters of water bodies. Prevent spray drift to desirable plants. **Do not** apply to frozen soil.

Do not apply to gravelly or rocky soils, exposed sub soils or sand.

Do not use on moderate to steep sloped sites where there is the potential for run-off to sensitive areas. Crop injury occurs in fields where alfalfa root growth has been restricted by hard pans or other physical barriers to root growth.

Do not drain or flush equipment on or near desirable trees or other plants, or on areas where their roots may extend, or in locations where the chemical may be washed or moved into contact with their roots.

Do not apply to soils with less than 1% organic matter.

Effects of Rainfall

Rainfall within 4 hours of application may affect contact activity.

Movement In Soil

Velpar is mobile in the soil. Persistence in the soil is influenced by temperature, rainfall, soil type and organic matter.

9. Grazing And Cropping Restrictions

Do not graze treated crop or cut for hay.

Re-cropping

Do not treat fields that are to be planted to other crops within 24 months of application. Information enabling specific recommendations for rotational crops and re-cropping intervals is limited.

Do not seed any crop following alfalfa that has been treated with Velpar until a successful field bioassay shows that the crop in question may be grown safely. Seeding of field bioassays is not recommended less than 24 months after the last Velpar application. Refer to the label for complete instructions on how to undertake a field bioassay.

Venture L (*fluazifop-p-butyl*)

HERBICIDE GROUP - 1

1. Formulations

emulsifiable concentrate (125 g/L).

2. Registered Mixes

creeping red fescue (seed production only) - Ally; **alfalfa, bird's-foot trefoil, red clover** - 2,4-DB; **canola** - Lontrel, Muster (Argentine varieties only), Poast Ultra, Poast Ultra plus Lontrel, Poast Ultra plus Muster.

3. Crops

alfalfa, canola, red clover, creeping red fescue (seedling and established for seed production only), field peas, bird's-foot trefoil.

4. Weeds Controlled

barnyardgrass, green and yellow foxtail, Persian dandel, volunteer wheat, volunteer barley, volunteer corn, wild oats.

5. Weeds Suppressed

quackgrass.

6. When Used

Annual Grasses- apply to actively growing annual grasses at the full 2 to 5 leaf stages. For **green and yellow foxtail** apply in the full 2 to 4 leaf stages. Established grasses beyond the 5 leaf stage (including re-growth after clipping or tilling) will not be controlled.

Quackgrass (seasonal control)- apply to plants that have 2 to 5 fully developed leaves and are actively growing. Rhizomes of quackgrass must be thoroughly fragmented by tillage (with disc or cultivator) prior to application to obtain effective control. Tillage required to fragment rhizomes can be done in the spring before seeding. Application made to plants greater than 20 cm in height or which have reached the heading stage may not provide adequate control.

Do not cultivate for 5 days after application.

7. Application Considerations

Venture L is less effective when weeds are not growing rapidly due of stress from lack of moisture, excessive moisture, flooding, low-temperature and/ or very low relative humidity.

Sequential Applications

Always apply Venture L first allowing at least 3 days before applying another herbicide. Where Muster is to be used in sequence with Venture L, apply Muster first and wait 4 days before applying Venture L.

WARNING: Experimental feeding studies in rats have demonstrated that the active ingredient in this product can produce birth defects and other adverse effects in the developing fetus of rats. Women capable of bearing children should be particularly careful when handling this product.

8. Environmental Considerations

Velpar L contains a petroleum distillate that is moderately to highly toxic to aquatic organisms. **Do not** apply within 15 m of fish-bearing waters and wildlife habitats.

Effects of Rainfall

Rainfall commencing two hours after application will not affect activity.

Movement in Soil

No soil movement. This product will not leach in the soil.

9. Grazing And Cropping Restrictions

Do not harvest red clover, bird's-foot trefoil or creeping red fescue for feed or graze livestock in the year of treatment. Alfalfa (treated crop) and field peas (straw) may be fed to lactating dairy animals and other livestock: 41 days after application (alfalfa); 66 days after application (field peas).

Re-cropping

Seed only broadleaved crops listed on this label if it is necessary to reseed a crop within 60 days of application.

