AgNOVA TECHNOLOGIES

An American Vanguard Company

AgNote

# HELLCAT® HERBICIDE

**HELLCAT contains 200 g/L glufosinate-ammonium and 3.6 g/L carfentrazone-ethyl (MOA Group 10/14)**

## A Convenient Co-formulation

HELLCAT® is a micro-emulsion herbicide for the control of broadleaf and grass weeds in orchards, vineyards, cane fruit, summer fallow, road and rail areas, non-agricultural areas and forestry. The convenient co-formulation provides excellent post-emergent control of a broad spectrum of weeds, including hard-to-kill weeds such as fleabane, wild oats and awnless barnyard grass.

## Features

- **Convenient co-formulation**
- **Group 10 + Group 14 herbicide – useful resistance management tool**
- **Broad weed spectrum – broadleafs and grasses**
- **Contact and limited systemic activity**
- **Rapid knockdown – symptoms within hours of application**
- **Micro-emulsion formulation**
- **Not a Dangerous Good**

## Uses

Apply as a post-emergent knockdown herbicide for the control of certain broadleaf and grass weeds prior to the establishment of winter crops and summer fallow, as well as a directed spray under:

- Fruit trees
- Tree nuts
- Grapevines
- Cane berries

and for use in commercial, industrial, railways, roadsides and public service areas.

For residual weed control in citrus, grapes and olives, tank mix with KATANA* 250 WG.

## Application Timing

Application of HELLCAT for broadleaf weed control should target small, actively growing weeds. Subsequent germinations will not be controlled. Optimum results are achieved when HELLCAT is applied under warm, humid conditions (temperatures below 33°C, with a relative humidity above 50%), when soil is moist and rain is unlikely within six hours.

## Modes of Action

Glufosinate-ammonium belongs to the phosphinic acids family of herbicides (Group 10). This mode of action inhibits the activity of the enzyme glutamine synthetase in the plant, resulting in excessive accumulation of ammonia and reactive oxygen species (ROS), which ultimately destroys the cells of the target weed. Under ideal conditions, symptoms of yellowing and necrosis of leaves will occur within 24 hours.

Carfentrazone-ethyl is a member of the inhibitors of protoporphyrinogen oxidase (PPO) group of herbicides (Group 14). These herbicides are primarily contact-type, post-emergence, broadleaf-weed herbicides. Inhibition of the PPO enzyme blocks chlorophyll production, leading to the buildup of ROS which disrupt the cell membrane. Plants become bleached (white), then desiccated and necrotic (brown), often within hours.

Both active ingredients lead to the accumulation of ROS via two different pathways, causing rapid destruction of target weeds.

## Crop Safety

HELLCAT has been tested extensively, both in Australia and internationally, for crop safety on a range of different varieties

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of grapevines, citrus, olives, *Rubus*, pome and stone fruits, tropical and sub-tropical fruits across a range of soil types and seasons. To ensure safety of the target crop:

- Apply as a directed or shielded spray
- Trees and vines <2-years-old or with green bark **MUST** be shielded from spray and spray drift
- **DO NOT** allow spray or spray drift to contact desirable foliage or green (uncalloused) bark
- **DO NOT** apply by aerial application
- **DO NOT** allow incidental spray drift onto desirable green stems, foliage, fruit or flowers, as it may result in necrosis
- **DO NOT** apply to recently fumigated or sterilised soil, as plant-back issues may occur
- **DO NOT** allow desirable plant foliage to contact any inert surface, such as plastic mulches, which have been treated with HELLCAT

**Foreground: HELLCAT 3 L/ha; background: HELLCAT 5 L/ha; centre: untreated control. Grapes, 2019, Pipersbrook Tas.**

## Withholding Period

**Harvest:**

- Citrus fruit, grapes, olives, *Rubus*, tree nuts, tropical and subtropical fruits – inedible peel or cane berries: Not required when used as directed.
- A 30-day withholding period for all herbicide active constituents for wine grapes is recommended by the AWRI. If weed control is required within 30 days of harvest, contact your winery prior to spraying.
- Pome and stone fruit: DO NOT harvest for 21 days after application.
- Refer also to the withholding period of product(s) mixed with HELLCAT.

**Grazing:**

- Summer fallow: DO NOT graze or cut for stock food a crop sown following a fallow spray for 6 weeks after sowing.
- All other crops: DO NOT graze or cut treated areas for stock food for 8 weeks after application.

## Resistance Management

HELLCAT is a Group 10 and Group 14 herbicide. Herbicides belonging to both Group 10 and Group 14 are considered a moderate resistance risk by CropLife Australia if they are not used correctly. For resistance management, it is important to:

- Use tank mixes or co-formulations with herbicides from different MOA groups (such as HELLCAT)
- Apply sequential applications of herbicides from different MOA to weeds that are difficult to control
- Adopt an integrated weed management program based on guidelines from CropLife Australia
- Scout after herbicide application to monitor weed populations for early signs of resistance development

## Cleaning Procedures

HELLCAT should never be left in a tank after spraying. AgNova recommends using All Clear® DS Spray Tank Cleaner and Decontaminator immediately after each application of HELLCAT due to its unmatched cleaning and decontamination abilities when used according to the product label. More information on All Clear DS can be found on the AgNova website.

## Directions For Use

| PART A. WEED CONTROL IN ORCHARDS, PLANTATIONS, VINEYARDS AND OTHER ROW CROPS | | | | |
|---|---|---|---|---|
| **CROP / SITUATION** | **WEEDS CONTROLLED** | **RATE** | **WHP** | **CRITICAL COMMENTS** |
| Citrus orchards | Control of perennial and annual weeds – see list of weeds in Table 1. | 1.7 to 5.0 L/ha | Nil (H)<br>8 weeks (G) | Apply as a directed or shielded spray. Refer to the label section **APPLICATION** for specific information on application methods.<br>**WARNINGS:** Do not allow spray or spray drift to contact desirable foliage or green (uncalloused) bark. To avoid potential crop damage, refer to the label sections on **APPLICATION** and **PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS**.<br>Controlled Droplet Application equipment must **not** be used for application in cherry orchards.<br>HELLCAT® Herbicide may be used around trees/vines less than two years old provided they are effectively shielded from spray and spray drift. **The recommended rate of use is determined by the following criteria:**<br>**WEED SPECIES**<br>**WEED STAGE OF GROWTH**<br>**WEED DENSITY**<br>**CLIMATIC CONDITIONS**<br>**WEED SPECIES**<br>Apply the appropriate rate to control the least susceptible weed present as per the lists of weeds controlled in the accompanying table.<br>**WEED STAGE OF GROWTH**<br>Use the lower rate when weeds are young and succulent (grasses: pre-tillering; broadleaves: cotyledons to 4-leaf) or the population is very sparse.<br>A median rate should be used for medium sized plants (grasses: tillering; broadleaves: 4-leaf to advanced vegetative) and the high rate should be used when weeds are mature (grasses: noding to flowering; broadleaves: budding to flowering).<br>**WEED DENSITY**<br>Use the higher rates when the weed population is dense. **Thorough coverage of weeds is essential for good control.**<br>**CLIMATIC CONDITIONS**<br>**Best results are achieved when applied under warm humid conditions** (temperatures below 33°C with a relative humidity above 50%). Control will be reduced and/or slower under cold conditions. Good results will be achieved under most other conditions, however poor results may occur under hot, dry conditions. Weeds that have been hardened or stunted in growth due to stressed conditions should be treated using the maximum rate.<br>**COVERAGE**<br>Complete coverage of weeds is essential for good control. Poor coverage may result in regrowth.<br>**PERENNIAL WEEDS**<br>Apply when weeds are actively growing. Follow up treatments will be necessary to control regrowth of perennial weeds in most cases.<br>When using HELLCAT as a spot spray, apply in sufficient water (minimum 500 L/ha) to thoroughly wet all weed foliage to the point of run-off.<br>Use an antifoam agent to prevent undue foaming when filling the spray tank. For further details refer to the sections **GENERAL INSTRUCTIONS** and **MIXING**.<br>**GRAPEVINES**<br>Apply as a directed or shielded spray. Avoid spray contact or drift onto desirable plant parts, as necrosis and spotting may occur. DO NOT apply in weather conditions which may move spray drift into the canopy, or onto nearby susceptible plants, adjacent crops or pastures.<br>DO NOT apply to vines younger than 2 years old or with green bark unless protected from the spray solution by a physical barrier.<br>**CANE BERRIES**<br>Apply as a directed or shielded spray to the inter-row area. Take care not to allow spray or spray drift to contact the crop.<br>DO NOT make more than 2 applications per season.<br>**WARNING:** This product is highly toxic to foliage and green stems, and incidental spray drift onto desirable green stems, foliage, fruit or flowers may result in necrosis.<br>Refer to **GENERAL INSTRUCTIONS** for warnings concerning plastic mulch.<br>**BLACKCURRANTS**<br>Take care not to allow spray or spray drift to contact the crop, including foliage, flowers, fruits or young stems.<br>DO NOT make more than 2 applications per season. |
| Tropical and sub-tropical fruits<br>Including: avocado, banana, feijoa, guava, kiwifruit, litchi, mango, pawpaw, passionfruit, pineapple, pitaya, rambutan | | | | |
| Olive plantations | | | | |
| Tree nut plantations | | | | |
| Pome and Stone fruit | | | 21 days (H)<br>8 weeks (G) | |
| Grapevines | | | Nil (H)<br>8 weeks (G) | |
| Cane Berries (Inter-row)<br>*Rubus* spp. (including raspberry, blackberry, loganberry and boysenberry) | | | | |
| Blackcurrants | | | | |

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## Directions For Use (continued)

| PART B. SUMMER FALLOW | | | | | |
|---|---|---|---|---|---|
| **CROP / SITUATION** | **WEEDS CONTROLLED** | **WEED STAGE** | **RATE** | **WHP** | **CRITICAL COMMENTS** |
| Maintenance of summer fallow prior to planting:<br>**Cereal grains** (Including wheat, barley, oats, maize and sorghum)<br>**Pulses** (including chickpeas, faba beans, field peas, lentils, lupins and mungbeans)<br>**Oilseeds** (including canola, cotton, soybeans and sunflowers) | **Control of:**<br>Annual polymeria,<br>Bellvine,<br>Bladder ketmia,<br>Caltrop,<br>Dwarf amaranth,<br>Field bindweed,<br>Flax-leaf fleabane,<br>Milk thistle (sowthistle),<br>Paddy melon,<br>Peach vine,<br>Red pigweed,<br>Rhyncho (*Rhyncosia*),<br>Sesbania pea,<br>Volunteer cotton (other than Liberty Link* cotton),<br>Yellow vine<br>**Suppression of:**<br>Chinese lantern (Wild gooseberry),<br>Noogoora burr complex | 2–6 leaf | 3.75 L/ha in a minimum of 100 L of water | 6 weeks after sowing of the crop (G) | Apply to actively growing weeds. Good coverage is essential, incomplete coverage may result in poor control. DO NOT apply in water volumes below 100 L/ha. Refer to '**APPLICATION**' section for details.<br>**Apply by ground spraying equipment only.**<br>Use an antifoam agent to prevent undue foaming when filling the spray tank. For further details refer to the sections **GENERAL INSTRUCTIONS** and **MIXING**.<br>Do not apply more than 3 applications per season.<br>DO NOT sow crops until 14 days or more have elapsed after the final application.<br>HELLCAT will have an effect on weeds that are larger than recommended leaf stage, however, the speed of activity and level of control may be reduced.<br>**CLIMATIC CONDITIONS**<br>**Best results are achieved when HELLCAT is applied under warm humid conditions** (temperatures below 33°C, with a relative humidity above 50%). Under any other conditions efficacy and speed of action may be reduced.<br>Do not apply onto weeds when dew, fog or mist is present. |

| PART C. COMMERCIAL, INDUSTRIAL, NON-AGRICULTURAL AREAS, FENCELINES IN AGRICULTURAL AREAS AND FORESTRY PLANTATIONS | | | | |
|---|---|---|---|---|
| **SITUATION** | **WEEDS CONTROLLED** | **RATE** | **WHP** | **CRITICAL COMMENTS** |
| Commercial, industrial. plantation forestry, firebreaks, and public service areas (such as rights-of-way, rail track and yards, roadsides) | See list of weeds in Table 1. | 1.7 to 5.0 L/ha<br>Handgun and knapsack application: 300–500 mL/100 L | -- | Use the lower rates on younger weeds or weeds growing under good conditions and the higher rates on older weeds or weeds growing under less optimum conditions. Refer to the criteria on weed species, weed stage of growth, weed density and climatic conditions as described in Part A of the Directions for Use table, under Critical Comments.<br>Warning: DO NOT allow spray or spray drift to contact desirable plants. To avoid potential crop damage, refer to the label section on **APPLICATION** and **PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS**.<br>Use an antifoam agent to prevent undue foaming when filling the spray tank. For further details refer to the sections **GENERAL INSTRUCTIONS** and **MIXING**. |
| Fencelines in agricultural areas | | | 8 weeks (G) | |

## Directions For Use (continued)

| PART C. COMMERCIAL, INDUSTRIAL, NON-AGRICULTURAL AREAS, FENCELINES IN AGRICULTURAL AREAS AND FORESTRY PLANTATIONS | | | | |
|---|---|---|---|---|
| **SITUATION** | **WEEDS CONTROLLED** | **RATE** | **WHP** | **CRITICAL COMMENTS** |
| Commercial, industrial. plantation forestry, firebreaks, and public service areas (such as rights-of-way, rail track and yards, roadsides) | Volunteer or wilding *Pinus* spp. | Handgun and knapsack application 500 mL/100 L water | -- | HELLCAT is a non-selective herbicide and will affect most weeds. Its forestry use is designed to improve the control of *Pinus* spp. wildings when pre-plant weed control is carried out. To broaden the weed spectrum, mixing with other herbicides such as glyphosate or metsulfuron-methyl at labelled rates may be necessary.<br>**APPLICATION**<br>Apply with an adjuvant. The addition of adjuvant may assist in improving performance. High water volumes or nozzle systems should be used to achieve complete coverage of weeds, which is essential for good control. Handgun or knapsack rates are based on the application of 1000 L of spray mixture per sprayed hectare. This is usually adequate to thoroughly wet dense stands of weeds. Less dense stands will require lower water rates. HELLCAT does not provide residual weed control. To prevent undue foaming when filling the spray tank use an antifoam agent. For further details refer to the sections **GENERAL INSTRUCTIONS** and **MIXING**.<br>Also, refer also to comments in the **GENERAL INSTRUCTIONS** which relate to application.<br>**WEED GROWTH STAGE AND CONDITION**<br>Targeting *Pinus* spp. <15 cm in height is recommended to maximise efficacy. Apply when weeds are actively growing. Results will be reduced if the treated plant is under stress due to very dry, very wet, frosty or diseased conditions.<br>**COVERAGE**<br>Complete coverage of the target is essential for good control. Poor coverage may result in regrowth.<br>**CLIMATIC CONDITIONS**<br>Best results are achieved when applied under warm, humid conditions (temperatures <33°C with a relative humidity >50%). Good results will be achieved under most other conditions; however, poor results may occur under hot, dry conditions. Trials have shown better results from autumn and winter applications than from applications in spring or summer.<br>**SYMPTOMS**<br>Visible symptoms will appear within 3 weeks; tree death may take several months depending on initial coverage and size of tree. Follow up treatments may be necessary to control regrowth in some cases. |
| Forestry plantations (pre-plant plantation establishment) | | 5 L/ha | | |
| Line-marking on sports grounds | Turf grasses and other weeds | 300 to 500 mL/100 L water | -- | Refer to **GENERAL INSTRUCTIONS**.<br>HELLCAT is a non-selective, non-residual herbicide with limited translocation potential. Therefore, it is ideally suited for line marking on sports fields where precise weed control is required.<br>Apply at 6–8 week intervals depending on growth of turf.<br>Apply using a shielded single nozzle boom or hand wand. Use an antifoam agent to prevent undue foaming when filling the spray tank. For further details refer to the sections **GENERAL INSTRUCTIONS** and **MIXING**.<br>DO NOT allow spray or spray drift to contact desirable turf. |

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## Table 1. List of Weeds

| ANNUAL WEEDS | | | APPLICATION RATE | |
|---|---|---|---|---|
| | | | Refer to maximum rate in Directions for Use Table | |
| COMMON NAME | SCIENTIFIC NAME | Boom or directed sprayer L/ha | Handgun mL/100 L | Knapsack mL/15 L |
| Amaranthus spp. | *Amaranthus* spp. | 2.0 to 5.0 | 500 | 75 |
| Apple of Peru | *Nicandra physalodes* | 1.7 to 3.0 | 300 | 45 |
| Argentinian peppercress | *Lepidium bonariense* | 2.0 to 3.0 | 300 | 45 |
| Australian crassula/Stonecrop | *Crassula* spp. | 5.0 | 500 | 75 |
| Awnless barnyard grass | *Echinochloa colona* | 2.5 to 3.5 | 350 | 53 |
| Barley grass | *Hordeum leporinum* | 2.0 to 3.0 | 300 | 45 |
| Barnyard grass | *Echinochloa crus-galli* | 2.0 to 5.0 | 500 | 75 |
| Bell vine | *Ipomoea plebia* | 2.0 to 5.0 | 500 | 75 |
| Billy goat weed | *Ageratum conyzoides* | 2.0 to 5.0 | 500 | 75 |
| Bittercress | *Cardamine hirsuta* | 2.0 to 5.0 | 500 | 75 |
| Black bindweed (buckwheat) (refer Note 1) | *Fallopia convolvulus* | 1.8 to 5.0 | 500 | 75 |
| Bladder ketmia | *Hibiscus trionum* | 3.0 to 5.0 | 500 | 75 |
| Bordered panic | *Entolasia marginata* | 2.0 to 4.0 | 400 | 60 |
| Brome grass (refer Note 2) | *Bromus* spp. | 2.0 to 3.0 | 300 | 45 |
| Calopo | *Calopogonium mucunoides* | 2.0 to 5.0 | 500 | 75 |
| Caltrop burr | *Tribulus terrestris* | 3.0 to 5.0 | 500 | 75 |
| Capeweed | *Arctotheca calendula* | 1.7 to 5.0 | 500 | 75 |
| Chickweed | *Stellaria media* | 5.0 | 500 | 75 |
| Clover (subterranean) | *Trifolium subterraneum* | 1.8 to 3.0 | 300 | 45 |
| Cobbler's peg | *Bidens pilosa* | 2.0 to 5.0 | 500 | 75 |
| Common morning glory | *Ipomoea purpurea* | 2.0 to 5.0 | 500 | 75 |
| Common storksbill | *Erodium cicutarium* | 1.7 to 4.0 | 400 | 60 |
| Crabgrass | *Digitaria sanguinalis* | 3.0 to 5.0 | 500 | 75 |
| Crowsfoot grass | *Eleusine indica* | 3.0 to 5.0 | 500 | 75 |
| Dead nettle | *Lamium amplexicaule* | 2.0 to 5.0 | 500 | 75 |
| Dwarf crumbweed | *Chenopodium pumilo* | 3.0 to 5.0 | 500 | 75 |
| Fat hen | *Chenopodium album* | 3.0 to 5.0 | 500 | 75 |
| Flax-leaf fleabane | *Conyza bonariensis* | 3.0 to 5.0 | 500 | 75 |
| Fumitory | *Fumaria officinalis* | 1.8 to 5.0 | 500 | 75 |
| Green crumbweed | *Chenopodium carinatum* | 2.0 to 5.0 | 500 | 75 |
| Lesser canary grass | *Phalaris minor* | 3.0 to 5.0 | 500 | 75 |
| Lesser swinecress | *Coronopus didymus* | 3.0 to 5.0 | 500 | 75 |
| Liverseed grass | *Urochloa panicoides* | 1.7 to 5.0 | 500 | 75 |
| Marshmallow (refer Note 3) | *Malva parviflora* | 5.0 | 500 | 75 |
| Medics (annual) | *Medicago* spp. | 1.7 to 5.0 | 500 | 75 |
| Milk thistle (sowthistle) | Sonchus oleraceus | 2.0 to 5.0 | 500 | 75 |
| Milkweed | *Euphorbia heterophylla* | 3.0 to 5.0 | 500 | 75 |
| Mint weed | *Salvia relfexa* | 3.0 to 5.0 | 500 | 75 |
| New Zealand spinach | *Tetragona tetragoniodes* | 2.0 to 5.0 | 500 | 75 |
| Paterson's curse | *Echium plantagineum* | 1.7 to 3.0 | 300 | 45 |

## Table 1. List of Weeds (continued)

| ANNUAL WEEDS | | | APPLICATION RATE | |
|---|---|---|---|---|
| | | | Refer to maximum rate in Directions for Use Table | |
| COMMON NAME | SCIENTIFIC NAME | Boom or directed sprayer L/ha | Handgun mL/100 L | Knapsack mL/15 L |
| Peanuts | *Arachis hypogaea* | 1.7 to 3.0 | 300 | 45 |
| Pigweed | *Portulaca oleracea* | 3.0 to 5.0 | 500 | 75 |
| Pinkburr | *Urena lobata* | 2.0 to 5.0 | 500 | 75 |
| Potato weed | *Galinsoga parviflora* | 2.0 to 5.0 | 500 | 75 |
| Prairie grass (refer Note 2) | *Bromus unioloides* | 4.0 to 5.0 | 500 | 75 |
| Prickly lettuce | *Lactuca serriola* | 3.0 to 5.0 | 500 | 75 |
| Prickly sowthistle | *Sonchus asper* | 3.0 to 5.0 | 500 | 75 |
| Red natal grass | *Rhynchelytrum repens* | 2.0 to 5.0 | 500 | 75 |
| Rhode's grass | *Chloris gayana* | 3.0 to 5.0 | 500 | 75 |
| Ryegrass (annual) | *Lolium rigidum* | 2.0 to 5.0 | 500 | 75 |
| Saffron thistle | *Carthamus lanatus* | 1.7 to 5.0 | 500 | 75 |
| St Barnaby's thistle | *Centaurea solstitialis* | 1.7 to 5.0 | 500 | 75 |
| Sago weed | *Plantago cunninghamii* | 2.0 to 3.0 | 300 | 45 |
| Scarlet pimpernel | *Anagallis arvensis* | 2.0 to 5.0 | 500 | 75 |
| Setaria | *Setaria italica* | 2.0 to 5.0 | 500 | 75 |
| Sheep thistle | *Carduus tenuiflorus* | 2.5 to 5.0 | 500 | 75 |
| Silver grass | *Vulpia myuros* | 2.0 to 5.0 | 500 | 75 |
| Sorghum/sudax | *Sorghum bicolor* | 2.0 to 5.0 | 500 | 75 |
| Speedwell | *Veronica persica* | 3.0 to 5.0 | 500 | 75 |
| Square weed | *Spermacoce latifolia* | 2.0 to 5.0 | 500 | 75 |
| Stagger weed | *Stachys arvensis* | 2.0 to 5.0 | 500 | 75 |
| Star of Bethlehem | *Ipomoea quamoclit* | 2.0 to 5.0 | 500 | 75 |
| Summer grass | *Digitaria ciliaris* | 2.0 to 5.0 | 500 | 75 |
| Thickhead | *Crassocephalum crepidioides* | 3.0 to 5.0 | 500 | 75 |
| Three cornered jack | *Emex australis* | 2.0 to 5.0 | 500 | 75 |
| Tomato | *Lycopersicon esculentum* | 2.0 to 5.0 | 500 | 75 |
| Townsville stylo | *Stylosanthes humilis* | 1.7 to 3.0 | 300 | 45 |
| Turnip weed | *Rapistrum rugosum* | 3.0 to 5.0 | 500 | 75 |
| Variegated thistle | *Silybum marianum* | 2.5 to 5.0 | 500 | 75 |
| Wall fumitory | *Fumaria muralis* | 3.0 to 5.0 | 500 | 75 |
| Wheat | *Triticum aestivum* | 4.0 to 5.0 | 500 | 75 |
| Whorled pigeon grass | *Setaria verticillata* | 3.0 to 5.0 | 500 | 75 |
| Wild carrot | *Daucus glochidiatus* | 2.0 to 5.0 | 500 | 75 |
| Wild gooseberry | *Physalis minima* | 2.0 to 5.0 | 500 | 75 |
| Wild mustard | *Sisymbrium orientale* | 2.0 to 5.0 | 500 | 75 |
| Wild oats | *Avena* spp. | 3.0 to 5.0 | 500 | 75 |
| Wild radish | *Raphanus raphanistrum* | 5.0 | 500 | 75 |
| Wireweed | *Polygonum aviculare* | 1.7 to 5.0 | 500 | 75 |

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## Table 1. List of Weeds (continued)

| PERENNIAL WEEDS | | | APPLICATION RATE | |
|---|---|---|---|---|
| | | | Refer to maximum rate in Directions for Use Table | |
| COMMON NAME | SCIENTIFIC NAME | Boom or directed sprayer L/ha | Handgun mL/100 L | Knapsack mL/15 L |
| Blady grass | *Imperata cylindrica* | 3.0 to 4.0 | 400 | 60 |
| Cape tulip | *Homeria* spp. | 2.0 to 3.0 | 300 | 45 |
| Centro | *Centrosema pubescens* | 1.7 to 5.0 | 500 | 75 |
| Clover glycine | *Glycine latrobeana* | 1.7 to 3.0 | 300 | 45 |
| Couch grass | *Cynodon dactylon* | 2.5 to 5.0 | 500 | 75 |
| Cowpea | *Vigna unguiculata* | 1.7 to 3.0 | 300 | 45 |
| Giant sensitive plant | *Mimosa invisa* | 2.0 to 5.0 | 500 | 75 |
| Greenleaf desmodium | *Desmodium intortum* | 1.7 to 3.0 | 300 | 45 |
| Johnson grass | *Sorghum halepense* | 3.0 to 5.0 | 500 | 75 |
| Panicum spp. | *Panicum* spp. | 2.0 to 5.0 | 500 | 75 |
| Paspalum spp. | *Paspalum* spp. | 3.0 to 5.0 | 500 | 75 |
| Perennial bindweed | *Convolvulus arvensis* | 2.0 to 3.0 | 300 | 45 |
| Perennial ryegrass (refer Note 2) | *Lolium perenne* | 3.0 to 5.0 | 500 | 75 |
| Shamrock | *Oxalis corymbosa* | 3.0 | 300 | 45 |
| Sida weed | *Sida retusa* | 3.0 to 5.0 | 500 | 75 |
| Silverleaf desmodium | *Desmodium uncinatum* | 4.0 to 5.0 | 500 | 75 |
| Siratro | *Macroptilium atropurpureum* | 1.7 to 3.0 | 300 | 45 |
| Stink grass | *Eragrostis cilianensis* | 3.0 to 5.0 | 500 | 75 |
| White clover | *Trifolium repens* | 3.0 to 5.0 | 500 | 75 |
| White eye | *Richardia brasiliensis* | 3.0 to 5.0 | 500 | 75 |
| Willow herb | *Epilobium* spp. | 4.0 to 5.0 | 500 | 75 |

**Notes:**

1. Good control will be achieved on small and medium sized plants only in non-crop situation.
2. Well-established clumps of prairie grass, brome grasses & perennial ryegrass may only be suppressed at these rates. Follow-up treatments may be necessary to control regrowth.
3. Marshmallow growing and sprayed in the summer is especially prone to drought stress and may either not show symptoms typical of HELLCAT or may regrow following treatment although plants did not appear very stressed at application.

**NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.**



**For more information scan the QR code or contact your local Area Sales Manager**