

CAUTION

KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING



ACTIVE CONSTITUENT: 400 g/L CARFENTRAZONE-ETHYL
SOLVENT: 463 g/L LIQUID HYDROCARBON

GROUP

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HERBICIDE

For improvement in the control of marshmallow and certain other broadleaf weeds prior to establishment of broadacre crops, fallows or forest plantations, in commercial, industrial and public service areas, and around agricultural buildings and yards, in treefruits, nuts, grapevines in tank mixture with knockdown herbicides; for the control of marshmallow and annual nettles in grass pastures and rough grass/turf areas; and control of volunteer cotton seedlings including Roundup Ready[®] cotton and desiccation of cotton re-growth as specified in the DIRECTIONS FOR USE table.

IMPORTANT: READ THE ATTACHED LEAFLET BEFORE USE

FMC

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DIRECTIONS FOR USE

Restraints

DO NOT apply by aerial application except for cotton desiccation.

Situation	Weeds Controlled	State	Time of Application
<p>Prior to sowing winter and summer broadacre crops and starting a fallow.</p> <p>To assist in weed control in Commercial, Industrial and Public Service areas, around Agricultural buildings and yards.</p> <p>In young or established Grapevines, Treefruits (including Pome fruit, Stone fruit and Citrus fruit), Tree Nuts and Assorted Tropical and Sub tropical fruits.</p>	<p>Australian Crassula/Stonecrop <i>Crassula spp</i> Capeweed <i>Arctotheca calendula</i> Chickweed <i>Stellaria media</i> Common storksbill (max. 4 leaves) <i>Erodium cicutarium</i> Doublegee / Spiny emex / Three cornered jack <i>Emex australis</i> Marshmallow <i>Malva parviflora</i> Paterson's curse <i>Echium plantagineum</i> Sub. clover <i>Trifolium subterraneum</i> Wild radish <i>Raphanus raphanistrum</i></p> <p>Refer also to the product label for the knockdown herbicide used.</p> <p>If one of the above weeds is the dominant weed, and there is no specific rate for it in the knockdown herbicide's label, consult the label's generic annual-weed rate-range. Select from within this range to suit the weed-stage, weed-density, conditions (etc) of your situation.</p>	All States	Apply as a tank mix with Gladiator, Roundup Power Max or other glyphosate products; SpraySeed, Shirquat, Nuquat or other paraquat products.

Rate	Critical Comments
<p>15 - 45 mL/ha plus recommended label rates of knockdown herbicides</p> <p>Spot spray 6 mL/100 L plus recommended label spot spray rates of knockdown herbicides</p>	<p>Addition of Hammer 400EC to knockdown herbicides will increase the speed at which treated broadleaved weeds in general develop visible symptoms (compared to results achieved with knockdown herbicides applied alone) and may improve final control of broadleaved weeds including certain hard-to-kill weeds, marshmallow in particular. The use of higher rates and full soil disturbance in cropping situations may improve control of marshmallow in particular.</p> <p>Use the lower rates on younger plants or plants growing under good conditions and the higher rates on older plants or plants growing under less optimum conditions.</p> <p>The lower rate may only provide suppression of capeweed, wild radish, common storksbill and doublegee under poor growing conditions. Common storksbill should be no larger than 4 leaf at spraying, recently germinated and not under stress – older or stressed plants may not be adequately controlled.</p> <p>Application to hardened weeds or drought stressed weeds especially under summer conditions may cause only localised injury to weed foliage which may not enhance final weed control. Mallow growing and sprayed in the summer is especially prone to drought stress and may either not show symptoms typical of Hammer 400EC or may regrow following treatment although plants did not appear very stressed at application.</p> <p>Apply only as a tank mix with recommended rates of knockdown herbicides. Refer to the appropriate label for weed sizes and follow all label directions. Addition of Supercharge at 0.5% may be beneficial when applying Hammer 400EC with a glyphosate herbicide.</p> <p>To ensure uptake of Hammer 400EC DO NOT sow crops for at least 1 hour after application. Always refer to the appropriate companion product label in case a longer re-crop sowing period is required.</p> <p>When using Hammer 400EC as a spot spray, apply in sufficient water (minimum 500 L/ha) to thoroughly wet all weed foliage to the point of run-off. Addition of standard rates of a non-ionic surfactant may improve weed control.</p>

Situation	Weeds Controlled	State	Time of Application
Prior to sowing summer broadacre crops and starting a fallow	Volunteer cotton seedlings, including Roundup Ready varieties	NSW, Qld, WA only	Apply to seedlings at 2- 6 leaf stage
Grass pastures; Rough grass/ turf areas	Marshmallow <i>Malva parviflora</i> Annual (stinging) nettles <i>Urtica urens</i>	All States	Apply to seedlings at 2- 10 leaf stage

Rate	Critical Comments
<p>Roundup Ready cotton only : 45 – 60 mL/ha plus Supercharge or Hasten 1%</p> <p>or</p> <p>45 – 60 mL/ha plus Gladiator or Roundup Power Max plus Supercharge or Hasten 0.5%</p> <p>Conventional cotton only : 30 - 45 mL/ha plus recommended rates of knockdown herbicides</p>	<p>Apply Hammer 400EC in a minimum spray volume of 80 L/ha to ensure effective coverage. Use of lower spray volumes may reduce weed control. Cotton should be growing well at application; application to plants growing under heat and moisture stress may reduce the level of control.</p> <p>To broaden the weed spectrum Hammer 400EC may be tank mixed with the recommended rate of a knockdown herbicide (Gladiator, Roundup Power Max or other glyphosate products, Shirqat or other paraquat products, SpraySeed). When using a tank mix with glyphosate for control of Roundup Ready seedlings the higher rate range of Hammer 400EC is required as well as Supercharge or Hasten at 0.5%.</p> <p>When using a tank mix with glyphosate for control of Conventional Cotton seedlings the addition of standard rates of a non-ionic surfactant or 0.5% of an oil adjuvant such as Supercharge or Hasten will maximise control.</p>
<p>15 - 45 mL/ha plus Supercharge or Hasten 0.5%</p> <p>15 - 45 mL/ha plus recommended rates of 2,4-D</p>	<p>Use the lower rates on younger plants or plants growing under good conditions and the higher rates on older plants or plants growing under less optimum conditions. These rates may only provide suppression of marshmallow.</p> <p>To improve the control of marshmallow Hammer 400EC should be tank mixed with one of the following: 500 mL/ha of an 800 g/L ethyl ester of 2,4-D 650 mL/ha of a 600 g/L LV ester of 2,4-D 750 mL/ha of a 625 g/L amine of 2,4-D – activity of this mix will be improved with the addition of Supercharge or Hasten at 0.5%.</p>

Situation	Weeds Controlled	State	Time of Application
Cotton	Desiccation of regrowth	Qld, NSW & WA only	Apply to regrowth following defoliation

Rate	Critical Comments
50 – 60 mL/ha	Use Hammer 400EC to desiccate regrowth which occurs following the defoliation program. Apply with crop oil concentrates or blended oil/surfactant adjuvants as this may result in a greater reduction of green shoot. Use the higher rate of Hammer 400EC when regrowth is vigorous or when there are more than 20 regrowth leaves of any size, per plant. Ensure that spray equipment is adjusted to provide thorough coverage of foliage to maximise product performance. Use a minimum of 100 L/ha for ground application and 30 L/ha for aerial application.

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

WITHHOLDING PERIOD:

HARVEST: NOT REQUIRED FOR HAMMER 400EC HERBICIDE WHEN USED AS DIRECTED.

HOWEVER, REFER ALSO TO THE WITHHOLDING PERIOD OF PRODUCT/S MIXED WITH HAMMER 400EC HERBICIDE.

GRAZING: GRASS PASTURE: NOT REQUIRED WHEN USED AS DIRECTED

CEREAL - DO NOT GRAZE TREATED AREAS OR CUT FOR STOCKFOOD FOR 14 DAYS AFTER APPLICATION.

COTTON PROCESSING: DO NOT HARVEST FOR 1 DAY AFTER APPLICATION.

GRAZING/COTTON TRASH: DO NOT GRAZE TREATED AREAS OR FEED COTTON TRASH TO LIVESTOCK.

EXPORT SLAUGHTER INTERVAL (ESI):

An export slaughter interval is not required when used as directed.

GENERAL INSTRUCTIONS

Hammer 400EC Herbicide is an emulsifiable concentrate formulation and is to be mixed with water and applied as per the labelled Directions for Use.

Hammer 400EC is a post-emergence herbicide to be added to knockdown herbicides to improve the control of certain broadleaf weeds including marshmallow prior to the establishment of fallows, winter and summer broadacre crops, marshmallow control in grass pastures, in commercial, industrial and public service areas, around agricultural buildings, yards and other farm situations. Hammer 400EC can be used alone with a suitable adjuvant for control of volunteer cotton seedlings including Roundup Ready cotton. It can also be used for desiccation of regrowth in cotton.

Hammer 400EC is a fast acting contact herbicide and aids in control of weeds through a process of membrane disruption. The foliar uptake of Hammer 400EC is rapid and plant desiccation can occur within 4 days of application. Application of Hammer 400EC should target small actively growing weeds. Subsequent germinations will not be controlled.

SYMPTOMS

Hammer 400EC is rapidly absorbed through the foliage of plants. Within a few hours following application, the foliage of susceptible weeds show signs of desiccation, and in subsequent days necrosis and death of the plant. Extremes in environmental conditions eg. temperature and moisture, soil conditions and cultural practices may affect the activity of Hammer 400EC. Under warm moist conditions, herbicide symptoms may be accelerated. While under very dry conditions, the expression of herbicidal symptoms is delayed, and weeds hardened off by drought are less susceptible to Hammer 400EC.

COMPATIBILITY

For most uses as per the Directions for Use Hammer 400EC should always be tank mixed with formulations of knockdown herbicides including Gladiator, Roundup Power Max, Roundup CT, Credit/Bonus or other products based on glyphosate, SpraySeed, Shirquat, Nuquat or other knockdown herbicides based on paraquat and Basta. Hammer 400EC is also compatible with partner herbicides commonly used with knockdown herbicides including Atralex, atrazine SC, Banvel 200, 2,4-D amine, 2,4-D ester, Logran (triasulfuron), pendimethalin, Simagranz, simazine SC, TriflurX and Treflan (trifluralin). This compatibility claim is restricted to a three-way mix of Hammer 400EC with any one of the above partner herbicides plus a knockdown herbicide (provided the knockdown herbicide label includes a claim of compatibility with that partner herbicide). Hammer 400EC is compatible with non ionic surfactants (wetting agents) such as BS1000, Shirwet 600 and with oil adjuvants including Supercharge and Hasten.

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RESISTANT WEEDS WARNING

Hammer 400EC Herbicide is a member of the Aryl triazolinone group of herbicides. Its mode of action is through a process of membrane disruption, which is initiated by the inhibition of the enzyme protoporphyrinogen oxidase. This inhibition interferes with the chlorophyll biosynthetic pathway. For weed resistance management Hammer 400EC is a Group G herbicide.

Some naturally occurring weed biotypes resistant to Hammer 400EC and other Group G herbicides may exist through normal genetic variability in any weed population. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds will not be controlled by Hammer 400EC or other Group G herbicides.

Since the occurrence of resistant weeds is difficult to detect prior to use, FMC Crop Protection Pty Ltd accepts no liability for any losses that may result from the failure of Hammer 400EC to control resistant weeds.

TIMING

Pre-crop, Volunteer cotton and Marshmallow in grass pastures

Application should be made to small, actively growing weeds less than 6 to 8 leaf in stage. As Hammer 400EC is a contact herbicide, best control is achieved when weeds are exposed and are not shielded by other weeds and or stubble.

Cotton

If cotton re-growth occurs after the initial defoliation program, apply Hammer 400EC to desiccate re-growth prior to harvest.

MIXING

Add half the required volume of water to spray tank and start agitation. Add any partner SC or WG herbicide next if it should be added before an EC or knockdown herbicide. Add the measured amount of Hammer 400EC next, followed by the knockdown herbicide (if required). Add balance of water to tank and add any adjuvant or additive if recommended for use with the knockdown herbicide or for use in grapevines or as suggested in the Critical Comments. Maintain good agitation at all times until spraying is completed. DO NOT store spray mixture overnight.

APPLICATION

DO NOT apply by aerial application except for cotton desiccation.

Ground sprayers

Pre-crop, Volunteer cotton and Marshmallow in grass pastures

Apply Hammer 400EC as a broadcast application using a conventional boom sprayer with either mechanical or by-pass agitation.

Use single orifice flat fan nozzles such as Spraying Systems TeeJetâ 11001, 110015, 11002 or equivalent sizes from other manufacturers or Spraying Systems TwinJetâ twin flat spray tips TJ60-11002, TJ60-11003 or TJ60-11004 or equivalent sizes from other manufacturers. Do not use 110-03 or bigger single orifice nozzles or TJ11006 or bigger twin orifice nozzles with Hammer 400EC. Do not use floodjet, boomless jets or misters or controlled droplet application equipment.

Spray equipment should be properly calibrated to ensure correct and uniform application. Use a spray volume of 50 to 150 litres per hectare (minimum 80 L/ha for volunteer cotton). Experience has shown that increasing spray volumes can improve weed control. Use the lowest pressure and boom height which provides uniform coverage. Use the higher volume if weed infestation is heavy and/or tall.

The best application conditions are when soil is moist, weather fine and rain unlikely within one hour or as specified for the knockdown herbicide.

Extremes in environmental conditions eg. temperature and moisture, soil conditions and/or cultural practices may affect the activity of Hammer 400EC. Under warm moist conditions, herbicide symptoms may be accelerated. While under very dry conditions, the expression of herbicidal symptoms is delayed, and weeds hardened off by drought are less susceptible to Hammer 400EC.

Cotton

When desiccation cotton regrowth, use sufficient water to obtain complete coverage of all leaves, ie. at

least 100 litres of water per hectare. Good coverage should be obtained with three or more nozzles per row depending upon crop height and canopy density.

Knapsack, Pneumatic, Handgun sprayers

Apply Hammer 400EC at the recommended rate of 6 mL per 100 litres in conjunction with labelled handgun rates of a knockdown herbicide in sufficient water to adequately and uniformly wet the foliage of the weeds being sprayed. A spray volume of 500 L to 1000 L will usually be sufficient but higher volumes may be required for dense taller vegetation.

Aerial Application (for Cotton Desiccation Only)

Apply by fixed wing aircraft in a minimum of 30 L/ha water and ensure thorough coverage. Do not exaggerate swath width.

SPRAYER CLEAN OUT - AFTER THE USE OF HAMMER 400EC

Thoroughly clean all spray equipment using the following procedure when you have finished spraying highly active materials such as carfentrazone-ethyl.

In addition to the following procedure, ensure proper equipment clean-out for any other products mixed with Hammer 400EC Herbicide as specified on the other product labels.

IMPORTANT:

More complete cleaning can be achieved if the spray equipment is cleaned immediately following each use.

Mix only as much herbicide spray solution as needed at a time.

DO NOT store the sprayer for any extended period of time, especially over night, with Hammer 400EC Herbicide spray solution remaining in the tank, spray lines, spray boom plumbing, spray nozzles or strainers.

Preparation of the Cleaning Solution:

Prepare a spray equipment cleaning solution by mixing an alkaline detergent eg "OMO" or "SPREE" at a rate of 100g for every 100L of clean water used.

Upon completion of applying Hammer 400EC and before spraying sensitive crops including **canola, pulses such as faba beans, lentils, other legumes and cotton:**

1. Fill the spray tank with sufficient cleaning solution to allow the operation of the spray system for a minimum of 15 minutes to thoroughly flush hoses, spray boom and spray nozzles **then fill the spray tank to capacity to ensure contact of the solution with all internal surfaces. Let the cleaning solution soak in tank, pump and spray lines overnight.**
2. Before further use of the sprayer, operate the spray system for 15 minutes, then completely drain the sprayer system. Rinse the tank with clean water and flush through the hoses, spray boom, and spray nozzles.
3. If possible spray a pesticide requiring an oil adjuvant eg Achieve & Supercharge onto cereals as a further means of removing possible residues of Hammer 400EC before spraying sensitive crops.
4. Immediately prior to commencement of spraying a sensitive crop, purge the boom lines by operating the spray system onto a fence line or waste area for sufficient time to remove any solution that has been residing in the spray lines. This is also recommended for subsequent tank loads or if the sprayer has been left standing for a period of time containing spray solution.

5. If storing equipment for more than 48 hours, preferred practice is to clean spray equipment as outlined above allowing to soak over night, drain and flush with fresh water and leave fresh water in the spray tank, hoses, and spray booms until next use. **This water must be drained from the spray boom and lines and flushed out with clean water before beginning any application to a sensitive crop.**

Properly dispose of all cleaning solution and rinsate safely in accordance with Federal, State, and local regulations and guidelines.

Do not apply sprayer cleaning solutions or rinsate to sensitive crops.

Should small quantities of Hammer 400EC remain in inadequately cleaned mixing, loading and/or spray equipment, they may be released during subsequent applications potentially causing effects to sensitive crops and other vegetation.

The above method is only effective if the cleaning solution comes into contact with every surface or contact point that may contain even minute carfentrazone-ethyl residues.

CROP PLANT BACK & ROTATION RECOMMENDATIONS

Hammer 400EC Herbicide does not provide residual activity, therefore no crop plant back or rotational restrictions apply. However, check the label of any product mixed with Hammer 400EC Herbicide, to determine any plant back periods or restrictions on use.

RE-ENTRY

Do not allow entry into treated areas until the spray has dried, unless wearing cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves. Clothing must be laundered after each day's use.

PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS

DO NOT apply under weather conditions, or from spray equipment, which may cause spray drift onto nearby susceptible plants, adjacent crops, or pastures, or onto wetlands, waterbodies or watercourses.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Highly toxic to algae and aquatic plants. DO NOT contaminate streams, rivers or waterways with Hammer 400EC or used container.

STORAGE AND DISPOSAL

Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight.

Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. Empty containers and product should not be burnt.

SAFETY DIRECTIONS

Harmful if inhaled. May irritate the nose and throat. Will irritate the eyes and skin. Repeated exposure may

cause allergic disorders. Avoid contact with eyes and skin. Do not inhale vapour or spray mist. When preparing the product for use and using the product wear elbow length chemical resistant gloves. When opening the container, mixing and loading and preparing spray, wear cotton overalls, over normal clothing, buttoned to the neck and wrist and face shield or goggles. If applying by hand wear cotton overalls, over normal clothing, buttoned to the neck and wrist and face shield or goggles. If product on skin, immediately wash area with soap and water. If product in eyes, wash it out immediately with water. Wash hands after use. After each day's use, wash gloves, face shield or goggles and contaminated clothing.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone Australia 13 11 26. If swallowed, do NOT induce vomiting. Give a glass of water.

MATERIAL SAFETY DATA SHEET

For further information on Hammer 400 EC Herbicide refer to the Material Safety Data Sheet (MSDS) which is available from the supplier or from fmccrop.com.au.

Conditions of sale

FMC Crop Protection Pty Ltd will not accept any responsibility whatsoever and howsoever arising and whether for consequential loss or otherwise in connection with the supply or use of these goods other than responsibility for the merchantable quality of the goods and such responsibilities mandatorily imposed by Statutes applicable to the sale or supply of these goods. To the extent allowed by such Statutes the liability of FMC Crop Protection Pty Ltd is limited to the replacement of the goods or (at the option of FMC Crop Protection Pty Ltd) the refund of the price paid and is conditional upon a claim being made in writing and where possible sufficient part of the goods to enable proper examination being returned to FMC Crop Protection Pty Ltd within thirty days of delivery.

- Hammer is a Registered Trademark of FMC Corporation.
- Atradox, Banvel, Basta, Bonus, Credit, Exit, Hasten, Logran, Nuquat, Roundup Ready, Roundup Power Max, Shirquat, Shirwet, Simagranz, SpraySeed, Supercharge, TriflurX, and Treflan are Registered Trademarks.

APVMA Approval No: 63228/60253

- FMC is a Registered Trademark of FMC Corporation Pty Ltd.



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