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2015-08-25

GROUP

M1

FUNGICIDE

CUEVA® COMMERCIAL

COPPER FUNGICIDE

COMMERCIAL

SOLUTION

READ THE LABEL BEFORE USING

KEEP OUT OF REACH OF CHILDREN

GUARANTEE: Copper, present as copper octanoate 1.8%

REG. NO. 31825 PCP ACT

NET CONTENTS 1-1,000 L

W. Neudorff GmbH KG, Postfach 1209, An der Mühle 3,
D-31860 Emmerthal, Germany

Canadian Agent:

Neudorff North America, Unit 11, 6782 Veyaness Road,
Saanichton, BC V8M 2C2
250-652-5888

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Dormant and growing season liquid copper fungicide. Controls many plant diseases using low concentrations of copper. Biodegradable - decomposes to a form useful to plants and microbes.

DIRECTIONS FOR USE

DO NOT apply this product in a way that will contact workers or bystanders, either directly or through drift. Only protected handlers may be in the area during application.

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT allow effluent or runoff from greenhouses containing this product to enter lakes, streams, ponds or other waters.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

DO NOT enter or allow worker entry into treated areas during the restricted-entry interval of 4 hours.

Field sprayer application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE S572.1) medium classification. Boom height must be 60 cm or less above the crop or ground.

Airblast application: **DO NOT** apply during periods of dead calm. Avoid application of this product when winds are gusty. **DO NOT** direct spray above plants to be treated. Turn off outward pointing nozzles at row ends and outer rows. **DO NOT** apply when wind speed is greater than 16 km/h at the application site as measured outside of the treatment area on the upwind side.

DO NOT apply by air.

Buffer zones:

Use of the following spray methods or equipment **DO NOT** require a buffer zone: hand-held or backpack sprayer and spot treatment.

The buffer zones specified in the table below are required between the point of direct application and the closest downwind edge of sensitive freshwater habitats (such as lakes, rivers, sloughs, ponds, prairie potholes, creeks, marshes, streams, reservoirs and wetlands) and estuarine/marine habitats.

Method of application	Crop	Buffer Zones (metres) Required for the Protection of:			
		Freshwater Habitat of Depths:		Estuarine/Marine Habitats of Depths:	
		Less than 1 m	Greater than 1 m	Less than 1 m	Greater than 1 m
Field sprayer	Turf, parsley, garden beet, celeriac, potatoes, sugar beet, chives, garlic, leek, onion, shallot, celery, bok choy, broccoli, cabbage, cauliflower, kale, kohlrabi, mustard, pak-choi, bean, pea, soybean, eggplant, peppers, tomatoes, cucumbers, cantaloupe, melon, squash, pumpkin, zucchini, blackberry, blueberry, currant, gooseberry, grape, raspberry and cranberry	15	5	5	3

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	Brussels sprouts, outdoor ornamental shrubs and flowering plants (such as rose, hollyhock, hydrangea, crape myrtle)		10	4	5	2
	Strawberries		4	2	2	1
Airblast	Apricot, cherry, plum, blackberry, blueberry, currant, gooseberry, grape, raspberry, filbert, hazelnut and walnut	Early growth stage	50	40	40	30
		Late growth stage	40	30	30	20
	Apple, pear, quince, nectarines and outdoor ornamental shrubs and flowering plants (such as rose, hollyhock, hydrangea, crape myrtle)	Early growth stage	45	35	35	30
		Late growth stage	35	25	25	20
	Peaches	Early growth stage	35	30	30	20
		Late growth stage	30	20	20	10

For tank mixes, consult the labels of the tank-mix partners and observe the largest (most restrictive) buffer zone of the products involved in the tank mixture and apply using the coarsest spray (ASAE) category indicated on the labels for those tank mix partners.

The buffer zones for this product can be modified based on weather conditions and spray equipment configuration by accessing the Buffer Zone Calculator on the Pest Management Regulatory Agency web site.

PESTS/SITES AND APPLICATION INSTRUCTIONS

GENERAL USE: For outdoor and greenhouse use only. Unless otherwise stated below, the standard rate for the listed species is 1 part CUEVA® COMMERCIAL concentrate in 50 (2%) to 200 (0.5%) parts water, applied at 470-940 L per hectare. Repeat sprays every 7 to 10 days as required unless otherwise noted below. For best control, begin treatment 2 weeks before disease normally appears or when weather forecasts predict a long period of wet weather. Alternatively, begin treatment when disease first appears and repeat at 7 to 10 day intervals, unless otherwise noted below. Apply at the higher rate every 5 to 7 days following heavy rain or when disease pressure is high. In general, do not exceed 15 applications per year, unless otherwise noted. For outdoor flowers and ornamentals, do not exceed 10 applications per year. If possible, time applications so that 12 hours of dry weather follow application.

Do not apply within one day of harvest

CUEVA® COMMERCIAL may cause degrees of copper toxicity on some plant species. During excessive moisture and cold, leaf spots can appear on copper-sensitive crop species. If concerned about sensitivity of plants, apply to individual plants or small areas of plants and wait to determine if plant damage occurs prior to treatment of larger areas.

TURF		
Crop or Plant	Application Rate and Notes	Diseases Controlled

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Turf (lawns, golf course turf, lawn bowling greens)	<p>Use a 0.5% to 2% solution and apply 4.7-9.4 L of spray for every 100 m² or 470-940 L per hectare</p> <p>Apply CUEVA® COMMERCIAL when disease first appears, and repeat at 7 to 10 day intervals for a maximum of 15 applications. In frequently diseased areas, prune adjacent trees and shrubs to reduce turf shading and to improve air movement.</p>	Powdery mildew (<i>Erysiphe graminis</i>)
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ORNAMENTALS (OUTDOOR AND GREENHOUSE)		
Crop or Plant	Application Rate and Notes	Diseases Controlled or Suppressed
<p>Greenhouse and outdoor ornamental shrubs and flowering plants (such as rose, hollyhock, hydrangea, crape myrtle)</p> <p>Rose</p> <p>Crape Myrtle</p>	<p>Use a 0.5% to 2% solution applied at 470-940 L per hectare Re-apply using 5-10 day intervals.</p> <p>CUEVA® COMMERCIAL may cause copper toxicity on some rose varieties. Copper toxicity appears as purple spots. For black spot, use a 1% solution.</p> <p>In damp cool conditions (below 18°C), phytotoxicity is likely to occur with the use of CUEVA® COMMERCIAL.</p>	<p>Corynespora leaf spot (<i>Corynespora asiicola</i>) – Suppression Powdery mildew (<i>Erysiphe</i> spp.), Rust (<i>Puccinia malvacearum</i>) Bacterial blight (<i>Pseudomonas syringae</i>) Fire blight (<i>Erwinia amylovora</i>) Coryneum blight (<i>Thyrostroma carpophilum</i>)</p> <p>Black spot (<i>Diplocarpon rosae</i>) Powdery mildew (<i>Podosphaera pannosa</i> var. <i>rosae</i>) Rust (<i>Phragmidium mucronatum</i>)</p> <p>Cercospora leaf spot(<i>Cercospora lythracearum</i>) -Suppression</p>

AGRICULTURAL CROPS		
Crop or Plant	Application Rate and Notes	Diseases Controlled or Suppressed
Crop Group 1: Root and Tuber Vegetables (Garden beet, Celeriac, Potato, Sugar beet)	Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 5-10 day intervals.	Early blight (<i>Alternaria solani</i>) on potato Late blight (<i>Phytophthora infestans</i>) on potato Septoria leaf spot (<i>Septoria</i>

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		<p><i>lycopersici</i>) on potato Septoria (late) blight (<i>Septoria apiicola</i>) on celeriac Cercospora leaf spot (<i>Cercospora beticola</i>) on beet and sugar beet</p>
Crop Group 3: Bulb Vegetables (Chives, Garlic, Leek, Onion, Shallot)	Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 5-10 day intervals.	<p>Downy mildew (<i>Peronospora destructor</i>) Botrytis leaf blight (<i>Botrytis squamosa</i>) Soft rot (<i>Erwinia carotovora</i> subsp. <i>carotovora</i>)</p>
Celery	Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 5-10 day intervals. Use higher rate when disease pressure is high..	<p>Cercospora (early) blight (<i>Cercospora apiicola</i>) Septoria (late) blight (<i>Septoria apiicola</i>)</p>
Crop Group 5: Brassica Leafy Vegetables (Bok choy, Broccoli, Brussels sprouts, Cabbage, Cauliflower, Kale, Kohlrabi, Mustard, Pak-choi)	Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 5-10 day intervals. For Brussels sprouts, do not exceed 10 applications per year.	<p>Black rot (<i>Xanthomonas campestris</i> pv. <i>campestris</i>) - Suppression</p>
Crop Group 6: Legumes (Bean, Pea, Soybean)	Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 5-10 day intervals.	<p>Ascochyta blight (<i>Ascochyta pisi</i>) Halo blight (<i>Pseudomonas syringae</i> pv. <i>phaseolicola</i>) Common blight (<i>Xanthomonas campestris</i> pv. <i>phaseoli</i>) Brown spot (<i>Pseudomonas syringae</i> pv. <i>syringae</i>) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Uromyces appendiculatus</i>)</p>
Crop Group 8: Fruiting Vegetables (Eggplant, Pepper, Tomatoes)	Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 5-10 day intervals.	<p>Early blight (<i>Alternaria solani</i>) Late blight (<i>Phytophthora infestans</i>) Septoria leaf spot (<i>Septoria lycopersici</i>) Bacterial speck (<i>Pseudomonas syringae</i>) Bacterial leaf spot (<i>Xanthomonas campestris</i> pv. <i>vesicatoria</i>) Bacterial canker (<i>Clavibacter michiganensis</i> pv. <i>michiganensis</i>)</p>
Crop Group 9: Cucurbits (Cucumbers, Cantaloupe, Melon, Squash, Pumpkin, Zucchini)	Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 5-10 day intervals.	<p>Powdery mildew (<i>Podosphaera xanthii</i>; <i>Erysiphe cichoracearum</i>)</p>

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		<p>Downy mildew (<i>Pseudoperonospora cubensis</i>) Alternaria leaf blight (<i>Alternaria cucumerina</i>) Anthracnose (<i>Colletotrichum orbiculare</i>) Angular leaf spot (<i>Pseudomonas syringae</i> pv. <i>orbiculare</i>) Bacterial wilt (<i>Erwinia tracheiphila</i>) Septoria leaf spot (<i>Septoria cucurbitacearum</i>)</p>
<p>Crop Group 11: Pome Fruit Trees (Apple, Pear, Quince)</p>	<p>Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 5-10 day intervals. Do not exceed 10 applications per year.</p> <p>Do not exceed the 1% rate for apple varieties susceptible to russetting.</p> <p>For fireblight control, apply CUEVA® COMMERCIAL in the dormant period, during bloom, or in-season cover spray applications.</p> <p>NOTICE: CUEVA® COMMERCIAL as used in this recommendation may cause russetting of light coloured apple varieties. Use an 0.8% solution when fruit is present.</p>	<p>Fire blight (<i>Erwinia amylovora</i>) Scab (<i>Venturia Inaequalis</i>, <i>V. pirina</i>)</p>
<p>Crop Group 12: Stone Fruit Trees (Apricot, Cherry, Nectarine, Peach, Plum and Necta-plum)</p>	<p>Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 5-10 day intervals.</p> <p>For peaches, do not exceed 5 applications per year.</p> <p>For nectarines, do not exceed 10 applications per year.</p> <p>For bacterial canker, apply as a dormant spray as buds begin to swell, repeating at the bud burst stage, and weekly thereafter as needed, up to six sprays. In the fall spray again at 10% and 80% leaf fall. For brown rot blossom blight apply full cover spray at delayed dormant (bud swell), popcorn, full bloom and petal fall stages. During wet weather additional bloom sprays</p>	<p>Peach leaf curl (<i>Taphrina deformans</i>) Bacterial spot (<i>Xanthomonas campestris</i> pv. <i>pruni</i>) Coryneum blight (<i>Thyostroma carpophilum</i>) Bacterial canker (<i>Pseudomonas syringae</i> pv. <i>syringae</i>, <i>morsprunum</i>) Brown rot (<i>Monilinia fructicola</i>) Leaf and fruit spot (<i>Blumeriella jaapii</i>)</p>

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	<p>may be necessary.</p> <p>Apply to leaf and fruit spot, Coryneum blight, and peach leaf curl as a dormant spray in late fall during a period of dry weather.</p>	
Crop Group 13: Small Fruits (Blackberry, Blueberry, Currant, Gooseberry, Grape, Raspberry, Strawberry)	<p>Use a 0.5% to 2% solution, applied at 470-940 L per hectare.</p> <p>Apply at the start of flowering and continue every 7 to 10. Do not apply within 1 day of harvest..</p> <p>For strawberries, spray 1 month after planting (or before flowering on established plants) and twice more at 7 day intervals.</p> <p>For grapes, do not mix CUEVA® COMMERCIAL with lime. Certain <i>Vitis vinifera</i> and French hybrid varieties may be sensitive to copper sprays resulting in marginal leaf burn. Make test sprays before spraying these varieties</p>	<p>Powdery mildew (<i>Erysiphe necator</i>) on grape</p> <p>Powdery mildew (<i>Podosphaera aphanis</i>) on strawberry</p> <p>Downy mildew (<i>Plasmopara viticola</i>) on grape</p> <p>Rust (<i>Cronartium ribicola</i>) on currant and gooseberry</p> <p>Bacterial blight (<i>Pseudomonas syringae</i> pv. <i>Syringae</i>) on raspberry, blackberry, and blueberry</p>
Filbert, Hazelnut	<p>Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 5-10 day intervals.</p>	<p>Bacterial blight (<i>Xanthomonas campestris</i> pv. <i>corylina</i>)</p> <p>Eastern filbert blight (<i>Anisogramma anomala</i>)</p>
Walnut	<p>Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 5-10 day intervals.</p>	<p>Bacterial blight (<i>Xanthomonas campestris</i> pv. <i>juglandis</i>)</p>
Parsley	<p>Use a 0.5% to 2% solution, applied at 470-940 L per hectare.</p>	<p>Leaf spot (<i>Septoria petroselini</i>)</p>
Cranberry	<p>Use a 0.5% to 2% solution, applied at 470-940 L per hectare. Re-apply using 7-10 day intervals.</p>	<p>Leaf and twig blight (<i>Phomopsi vaccinii</i>; <i>Diaporthe vaccinii</i>)</p>

GREENHOUSE FOOD CROPS		
Crop or Plant	Application Rate and Notes	Diseases Controlled or Suppressed
Celery	<p>Use a 0.5% to 2% solution applied at 470-940 L per hectare. Re-apply using 5-10 day intervals.</p> <p>Use higher rate when disease pressure is high.</p>	<p>Cercospora (early) blight (<i>Cercospora apiicola</i>)</p> <p>Septoria (late) blight (<i>Septoria apiicola</i>)</p>
Crop Group 6: Legumes (Bean, Pea, Soybean)	<p>Use a 0.5% to 2% solution applied at 470-940 L per hectare. Re-apply using 5-10 day</p>	<p>Ascochyta blight (<i>Ascochyta pisi</i>)</p> <p>Halo blight (<i>Pseudomonas syringae</i> pv. <i>phaseolicola</i>)</p>

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	intervals.	Common blight (<i>Xanthomonas campestris</i> pv. <i>phaseoli</i>) Brown spot (<i>Pseudomonas syringae</i> pv. <i>syringae</i>) Powdery mildew (<i>Erysiphe</i> spp.) Rust (<i>Uromyces appendiculatus</i>)
Crop Group 8: Fruiting Vegetables (Eggplant, Pepper, Tomatoes)	Use a 0.5% to 2% solution applied at 470-940 L per hectare. Re-apply using 5-10 day intervals.	Early blight (<i>Alternaria solani</i>) Late blight (<i>Phytophthora infestans</i>) Septoria leaf spot (<i>Septoria lycopersici</i>) Bacterial speck (<i>Pseudomonas syringae</i>) Bacterial leaf spot (<i>Xanthomonas campestris</i> pv. <i>vesicatoria</i>) Bacterial canker (<i>Clavibacter michiganensis</i> pv. <i>michiganensis</i>)
Crop Group 9: Cucurbits (Cucumbers, Cantaloupe, Melon, Squash, Pumpkin, Zucchini)	Use a 0.5% to 2% solution applied at 470-940 L per hectare. Re-apply using 5-10 day intervals.	Powdery mildew (<i>Podosphaera xanthii</i> ; <i>Erysiphe cichoracearum</i>) Downy mildew (<i>Pseudoperonospora cubensis</i>) Alternaria leaf blight (<i>Alternaria cucumerina</i>) Anthracnose (<i>Colletotrichum orbiculare</i>) Angular leaf spot (<i>Pseudomonas syringae</i> pv. <i>orbiculare</i>) Bacterial wilt (<i>Erwinia tracheiphila</i>) Septoria leaf spot (<i>Septoria cucurbitacearum</i>)

RESISTANCE MANAGEMENT RECOMMENDATIONS

For resistance management, Cueva Commercial contains a Group M1 fungicide/bactericide. Any (fungal/bacterial) population may contain individuals naturally resistant to Cueva Commercial and other Group M1 (fungicides/bactericides). A gradual or total loss of pest control may occur over time if these (fungicides/bactericides) are used repeatedly in the same fields. Other resistance mechanisms that are not linked to site of action but specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.

To delay fungicide/bactericide resistance:

- Where possible, rotate the use of Cueva Commercial or other Group M1 fungicides/bactericides with different groups that control the same pathogens.
- Use tank mixtures with fungicide/bactericides from a different group that is effective on the target pathogen when such use is permitted.
- Fungicide/bactericide use should be based on an integrated disease management program that includes scouting, historical information related to pesticide use and crop rotation and considers host

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plant resistance, impact of environmental conditions on disease development, disease thresholds, as well as cultural, biological and other chemical control practices.

- Where possible, make use of predictive disease models to effectively time fungicide/bactericide applications.
- Monitor treated fungal/bacterial populations for resistance development. Notify Neudorff North America if reduced sensitivity of the pathogen to Cueva Commercial is suspected.

If disease continues to progress after treatment with this product, do not increase the use rate. Discontinue use of this product, and switch to another (fungicide/bactericide) with a different site of action, if available.

- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.

For further information and to report suspected resistance, contact www.neudorffpro.com

PRECAUTIONS

PREVENT ACCESS BY UNAUTHORIZED PERSONNEL. KEEP OUT OF REACH OF CHILDREN. Use only in well ventilated areas.

Wear goggles, long pants, a long-sleeved shirt and shoes plus socks during mixing/loading, application, clean-up and repair. In addition, wear chemical-resistant gloves during mixing/loading, clean-up and repair.

Remove personal protective equipment immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing. Remove clothing/personal protective equipment immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Discard clothing and other absorbent material that have been drenched or heavily contaminated with the product's concentrate. Do not reuse them. For cleaning/maintaining personal protective equipment, use detergent and hot water. Keep and wash personal protective equipment separately from other laundry.

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Wash the outside of gloves before removing.

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

TOXICOLOGICAL INFORMATION

Treat symptomatically.

ENVIRONMENTAL HAZARDS

TOXIC to birds, small wild mammals and aquatic organisms. Observe buffer zones specified under DIRECTIONS FOR USE. 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. 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.

FIRST AID

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

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If on skin or clothing, take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

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

STORAGE

Store in original container in a cool, dry, well ventilated area. To prevent contamination store this product away from food or feed. Protect from freezing.

DISPOSAL/DECONTAMINATION

For containers less than 23L: Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Make the empty, rinsed container unsuitable for further use.

If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

For containers 23L or less:

1. Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank.
2. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
3. Make the empty container unsuitable for further use.
4. Dispose of the container in accordance with provincial requirements.
5. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER

This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label. The user assumes the risk to persons or property that arises from any such use of this product.



Cueva® is a trademark of W. Neudorff GmbH KG