OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION
WASHINGTON, D.C. 20460

June 3, 2024

Michael Kellogg
Life Science Group, Inc.
c/o Pyxis Regulatory Consulting Inc.
4110 136th St. Ct. NW
Gig Harbor, WA 98332

Subject: Label Amendment – correct application rate for various uses, add a similar use and other minor changes
Product Name: AlongLife®
EPA Registration Number: 88930-1
Application Date: January 23, 2018
Case Number: 605353

Dear Michael Kellogg:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. “To distribute or sell” is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ

from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6.

If you have any questions, please contact Elisha Graham at graham.elisha@epa.gov.

Sincerely,

Kable Bo Davis
Senior Regulatory Specialist
Office of Pesticide Programs
Registration Division, Immediate Office

Enclosure

Copper Sulfate Pentahydrate	GROUP	M01	FUNGICIDE
Copper Sulfate Pentahydrate	GROUP	NOT CLASSIFIED	HERBICIDE

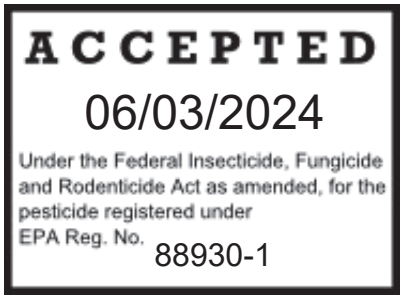
ALONGLIFE™

{Alternate Brand Names: TerraTec, RiceTec, AquaTec, Septi-Life , Lake-Life, Pool-Life, Industri-Life, Along-Life}

MASTER LABEL Containing:
Sub Label A: Non-Agricultural Use
Sub Label B: Agricultural Crop Use

EPA Reg. No. 88930-1
EPA Est. No.

[Manufactured for:] [Manufactured by:] [Distributed for:] [Distributed by:] Life Science Group, Inc.
Highland, Michigan, USA – (248) 438-5323
[Made in the U.S.A.]



Sub Label A: Non-Agricultural Use

Copper Sulfate Pentahydrate	GROUP	M01	FUNGICIDE
Copper Sulfate Pentahydrate	GROUP	NOT CLASSIFIED	HERBICIDE

ALONGLIFE™

{**Alternate Brand Names:** TerraTec, RiceTec, AquaTec, Septi-Life , Lake-Life, Pool-Life, Industri-Life, Along-Life}

Algaecide / Bactericide* / Fungicide / Aquatic Herbicide /Molluscicide

ACTIVE INGREDIENT:
•Copper Sulfate Pentahydrate (CAS #7758-99-8).....19.8%
OTHER INGREDIENTS:.....80.2%
TOTAL:.....100.0%
•5% Metallic Copper Equivalent
ALONGLIFE™ contains 0.495 pounds of metallic copper per gallon.
ALONGLIFE™ is a fully dissolved copper product.

KEEP OUT OF REACH OF CHILDREN

DANGER / PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

Non-Flammable

DO NOT FREEZE

(See [back] [label] [booklet] [below] for [Additional Precautionary Statements] [and] [Use Directions].)

EPA Reg. No. 88930-1
EPA Est. No.
NET CONTENTS: 9.9 lbs. per Gallon 1.188 Kg/L

FIRST AID

Have the product container or label with you when calling a poison control center or doctor or going for treatment. For emergency information, call the National Poison Center at 1-800-222-1222.

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 center or physician immediately for treatment advice.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor immediately for treatment advice.

If Swallowed: Call a poison control center or doctor immediately for advice. Have the person sip a glass of water if able to swallow. **Do not** induce vomiting unless told to do so by the poison control center or doctor. **Do not** give anything by mouth to an unconscious person.

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

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

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Highland, Michigan, USA – (248) 438-5323
[Made in the U.S.A.]

PRECAUTIONARY STATEMENTS
Hazards to Humans and Domestic Animals
DANGER

Corrosive. Causes irreversible eye damage. **Do not** get in eyes or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Harmful if swallowed, inhaled or absorbed through skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

For applications in waters destined for use as drinking water, those waters must receive additional and separate potable water treatment. **Do not** apply more than 1.0 ppm as metallic copper in these waters.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers loaders, applicators and other handlers must wear:

•Protective eyewear (goggles, face shield, or safety glasses).

•Long-sleeved shirt.

•Long pants, shoes and socks.

•Waterproof or chemical-resistant gloves such as barrier laminate; butyl rubber ≥14 mil; nitrile rubber ≥14 mil; neoprene rubber ≥14 mil; polyvinyl chloride (PVC) ≥14 mil; or viton≥14 mil.

• For overhead exposure wear chemical-resistant headgear.

Engineering Controls Statements:

When handlers use closed systems, enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6), the handler PPE requirements may be reduced or modified as specified in the WPS. Pilots must use an enclosed cab that meets the definition listed in the WPS for agricultura1 pesticides [40 CFR 170.305].

USER SAFETY RECOMMENDATIONS

Users should:

1) Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
2) Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
3) Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing

Follow manufacturer's directions for cleaning/maintaining PPE. If no such directions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate and **do not** reuse them.

PHYSICAL OR CHEMICAL HAZARDS

Do not use near or in containers composed of iron. **Do not** mix or allow coming in contact with reducing agent. Hazardous chemical reaction may occur.

ENVIRONMENTAL HAZARDS

Fish Advisory Statement: This copper product is toxic to fish and aquatic organisms. Unlike most organic pesticides, copper is an element and will not break down in the environment and will therefore accumulate in sediment with repeated applications. Copper is a micronutrient, but its pesticidal application rate exceeds the amount of copper needed as a nutrient.

Waters treated with this product may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead biomass. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, **do not** treat more than ½ of the water body (excluding water infrastructure and constructed conveyances such as drainage canals, ditches and pipelines or intakes and aqueducts for drinking water or irrigation use) to avoid depletion of oxygen due to decaying vegetation. Wait at least 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow fish to move into untreated areas. Consult with the state or local agency with primary responsibility for regulating pesticides before applying to public waters to determine if a permit is required. Application of algaecides to high density blooms of cyanobacteria can result in the release of intracellular contents into the water. Some of these intracellular compounds are known mammalian hepato- and nervous system toxins. Therefore, to minimize the risk of toxin leakage, manage cyanobacteria effectively in order to avoid applying this product when blooms of toxin-producing cyanobacteria are present at high density. In situations where rapidly

reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper at intervals shorter than 14 days should the circumstance demand.

Certain water conditions including low pH (≤6.5), low dissolved organic carbon (DOC) levels (3.0 mg/L or lower) and "soft" waters (i.e. alkalinity less than 50 mg/L) increases the potential acute toxicity to non-target aquatic organisms. The application rates on this label are appropriate for water with pH values > 6.5, DOC levels >3.0 mg/L, and alkalinity greater than 50 mg/L. Avoid treating waters with pH values <6.5, DOC levels >3.0, and alkalinity less than 50 ppm (e.g., soft or acid waters), as trout and other sensitive species of fish may be killed under such conditions if present.

Consult your state department of natural resources or fish and game agency before applying this product to public waters. Permits may be required before treating such waters.

For terrestrial uses, this pesticide is toxic to fish and aquatic invertebrates and may contaminate water through runoff. This product has a potential runoff for several months or more after application. Poorly drained soil and soils with shallow water tables are more prone to produce runoff that contains this product. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. For terrestrial uses, **do not** apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. **Do not** contaminate water when disposing of equipment washwater or rinsate.

Stormwater Advisory Statement: This product may be applied for the purposes of root intrusion control in storm drains or storm sewers that can discharge directly or indirectly into ephemeral or permanent waterbodies. This product must not be used in any municipal or public storm sewer or "MS4" system, or any storm drain system otherwise covered under an NPDES MS4 discharge permit. Copper will accumulate with repeated applications in the waterbodies to which treated storm drains/sewers discharge.

To the extent possible, avoid simultaneous treatments of multiple drain systems that discharge to the same waterbody. Staggering applications to individual stormwater collection points to allow interceding storm events to clear the product from previously treated rains can help reduce the impact to aquatic organisms in receiving waterbodies. Development of and adherence to, a pesticide management plant for storm drains is encouraged.

PRODUCT INFORMATION

[ALONGLIFE™ is used to control algae, bacteria*, aquatic weeds and mollusks in lakes, swimming areas, farm, industrial, retention and golf course ponds, ornamental water features or fountains, and waters destined for use as drinking water and equipment/structures that deliver the treated water directly to publicly owned water treatment facilities to include pipes, intake structures, gatehouses, screens, pumping stations, weirs and penstocks.]
[ALONGLIFE™ is used to control Quagga and Zebra mussels in lakes, ponds, lagoons, reservoirs, sedimentation basins, canals and ditches.]
[ALONGLIFE™ is used for control of leeches, slugs, and snails in impounded waters, lakes, ponds, livestock watering systems, reservoirs, swimming areas, farm, industrial, retention and golf course ponds, aquaculture ponds, biological fishponds or systems, ornamental water features and fountains.]
[ALONGLIFE™ is used for the suppression of bacterial odors and toxic gases in sewage lagoons, feedlot runoff pits, animal confinement facilities, and organic sludge pits containing organic matter of algae/bacteria*.]
[ALONGLIFE™ is used for control of algae and suppression of bacterial* growth in private and public pools, spas and hot tubs.]
[ALONGLIFE™ is used for control of algae and bacterial staining on roofing materials.]
[ALONGLIFE™ is used for the remedial treatment of mold to inhibit its growth on construction materials.]
[ALONGLIFE™ is used for control of algae, bacterial staining and fungi on clay and composition material tennis courts.]
[ALONGLIFE™ is used for control of root growth in sewer pipes and commercial, industrial and municipal sanitary sewers.]
[ALONGLIFE™ is used for control of algae and slime in industrial and commercial recirculating cooling towers.]
[ALONGLIFE™ is used for the prevention of the spread of citrus canker disease between hard, non-porous surfaces and from these surfaces to citrus plants.]
*Non-public health bacteria

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. **Do not** apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirement specific to your State and Tribe, consult the State or Tribal agency responsible for pesticide regulation.

NON-AGRICULTURAL USE REQUIREMENTS
The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. **Do not** allow people or pets to enter treated areas until sprays have dried.

RESISTANCE MANAGEMENT

Copper Sulfate Pentahydrate	GROUP	M01	FUNGICIDE
Copper Sulfate Pentahydrate	GROUP	NOT CLASSIFIED	HERBICIDE

For resistance management, ALONGLIFE™ contains a Group M01 fungicide/bactericide*. Any fungal/bacterial population may contain individuals naturally resistant to ALONGLIFE™ and other Group M01fungicides/bactericides. A gradual or total loss of pest control may occur over time if these fungicides/bactericides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay fungicide/bactericide resistance, take one or more of the following steps:

- Rotate the use of ALONGLIFE™ or other Group M01 fungicides/bactericides within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with fungicide/bactericides from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide/bactericide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host 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. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treated fungal/bacterial populations for resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information or to report suspected resistance contact Life Science Group at (248) 438-5323. You can also contact your pesticide distributor or university extension specialist to report resistance.

The multi-site activity grouping, designated by the symbol “M01”, comprises a collection of various chemicals that act as general toxophores with several sites of action. These sites may differ between group members.

Suspected herbicide-resistant weeds may be identified by these indicators:

- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and,
- Surviving plants mixed with controlled individuals of the same species.

Water bodies or management units should be scouted prior to application to identify the weed species present and their growth stage to determine if the intended application will be effective. Water bodies or management units should be scouted after application to verify that the treatment was effective.

Report any incidence of non-performance of this product against a particular weed species to your retailer, representative or call (248) 438-5323. If resistance is suspected, treat weed escapes with an herbicide having a different mechanism of action and/or use non-chemical means to remove escapes, as practical, with the goal of preventing further reproduction.

Implement the Early Detection, Rapid Response practice and Maintenance Control by using the following practices where possible:

- Identify weeds present in a management unit through scouting or history of the water body and understand the biology of target species.
- Applications should target weeds when populations are small and there is low biomass, early in the season to maximize efficacy.
- Applications should be made so that the herbicide contacts the weed. Use the appropriate application method for the use site/weed/chemical combination.
- Weed escapes should not be allowed to go to seed or produce asexual vegetative propagules.
- Use a diversified approach toward weed management. Whenever possible incorporate multiple weed-control practices such as mechanical control, biological management practices, and rotation of MOAs.
- Time applications to have the highest probability for control and minimize need for follow-up control measures. Apply during conditions that minimize herbicide degradation (light /temperature/microbes) and/or dissipation (water exchange).

Contact your local sales representative, local water management agency, or extension agent to find out if suspected resistant weeds to this MOA have been found in your region. If resistant biotypes of target weeds have been reported, use the application rates of this product specified for your local conditions. Tank mix products so that there are multiple effective mechanisms of actions for each target weed.

Maximum Annual Application Rates for Aquatic Uses in Impounded Waters, Ponds, Lakes, and Reservoirs:
Maximum annual application rate of 21.9 lbs. of metallic copper per acre-foot (8 applications per year at up to 1 ppm). This rate/frequency is calculated based on staggering the treatment of each half of the water body every 14 days (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) for eight months (244 days). In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 21.9 lbs. of metallic copper per acre-foot (8 applications per year at up to 1 ppm).

For Large Bodies of Water Separated Into Sections (Water Management Units):
Maximum annual application rate of 46.6 lbs. of metallic copper per acre-foot per year (17 applications per year at up to 1 ppm). This rate/frequency is calculated based on the maximum number of possible applications allowed based on a 14-day minimum (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) retreatment interval for eight months (244 days). **Do not** apply more than 46.6 lbs. of metallic copper to a water management unit, regardless of the pest(s) targeted by applications. In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 46.6 lbs. of metallic copper per acre-foot per year for a single water management unit.

Aquatic Uses:
This pesticide is toxic to fish and aquatic invertebrates. Waters treated with this product may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead algae and weeds. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, **do not** treat more than ½ of the water body (excluding water infrastructure and constructed conveyances such as drainage canals, ditches and pipelines or intakes and aqueducts for drinking water or irrigation uses) to avoid depletion of oxygen due to decaying vegetation. Wait at least 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State or local agency with primary responsibility for regulating pesticides before applying to public waters, to determine if a permit is required. Application of algaecides to high density blooms of cyanobacteria can result in the release of intracellular contents into the water. Some of these intracellular compounds are known mammalian hepato- and nervous system toxins. Therefore, to minimize the risk of toxin leakage, manage cyanobacteria effectively in order to avoid applying this product when blooms of toxin-producing cyanobacteria are present at high density. In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or
recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper at intervals shorter than 14 days should the circumstance demand.

Certain water conditions including low pH (≤6.5), low dissolved organic carbon (DOC) levels (3.0 mg/L or lower), and "soft" waters (i.e., alkalinity less than 50 mg/L), increases the potential acute toxicity to non-target aquatic organisms. The application rates on this label are appropriate for water with pH values > 6.5, DOC levels >3.0 mg/L, and alkalinity greater than 50 mg/L. Avoid treating waters with pH values <6.5, DOC levels >3.0, and alkalinity less than 50 ppm (e.g., soft or acid waters), as trout and other sensitive species of fish may be killed under such conditions if present. Consult your state department of natural resources or fish and game agency before applying this product to public waters. Permits may be required before treating such waters Consult your state department of natural resources or fish and game agency before applying this product to public waters. Permits may be required before treating such water.

APPLICATION AND HANDLING EQUIPMENT

Application, handling or storage equipment MUST consist of either fiberglass, PVCs, polypropylenes, Viton, most plastics, aluminum or stainless steel. Never use mild steel, nylon, brass or copper around full strength ALONGLIFE™. Always rinse equipment free and clean of ALONGLIFE™ each night with plenty of fresh, clean water. Always store ALONGLIFE™ above 32ºF. Freezing may cause product separation. Seller makes no warranty for the performance of product which has been frozen.

SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and the method of application (e.g., ground, chemigation) can influence pesticide drift.
The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Droplet Size: Applicators are required to use a medium or coarser droplet size (ASABE S572.1).

Wind Speed: **Do not** apply at wind speeds greater than 15 mph. Only apply this product if the wind direction favors on-target deposition (approximately 3 to 10 mph), and there are no sensitive areas within 250 feet downwind.

Temperature Inversions: If applying at wind speeds less than 3 mph, the applicator must determine if a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. **Do not** make applications into areas of temperature inversions or stable atmospheric conditions.

Other State and Local Requirements: Applicators must follow all state and local pesticide drift requirements regarding application of copper compounds. Where states have more stringent regulations, they must be observed.

Equipment: All and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

IMPORTANCE OF DROPLET SIZE:
An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size – Ground Boom
• Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
• Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
• Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

Boom Height – Ground Boom
Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop and have minimal bounce.

Shielded Sprayers - Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

Temperature and Humidity - When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

Temperature Inversions - Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

Wind - Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS. Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

PRECAUTIONS

•This product may be reactive on masonry and metal surfaces such as galvanized roofing. Avoid contact with metal surfaces
•Environmental conditions such as extended periods of wet weather, acid rain, etc., which alter the pH of the leaf surface may affect the performance of ALONGLIFE™ resulting in possible phytotoxicity or loss of effectiveness.
•It must be determined in the selection process if proper application equipment is available and if the waste associated with its use can be properly handled. Materials used on the construction of application equipment is also an important factor as agricultural chemicals are often reactive with soft metals such as aluminum and even some synthetic materials such as plastics, rubbers, etc. Therefore, it is necessary when working with equipment containing these materials, that they are thoroughly flushed with clean water after each day's use.

RESTRICTIONS

•**Do not** mix ALONGLIFE™ with acidic compounds such as products containing aluminum or apply to crops within 14 days before or after application of same.
•**Do not** spray on cars, houses (except roofs), lawn furniture, etc.

SPECIFIC DIRECTIONS FOR USE

FOR CONTROL OF ALGAE, BACTERIA*, AQUATIC WEEDS AND MOLLUSKS IN LAKES, SWIMMING AREAS, FARM, INDUSTRIAL, RETENTION AND GOLF COURSE PONDS, ORNAMENTAL WATER FEATURES OR FOUNTAINS, AND WATERS DESTINED FOR USE AS DRINKING WATER AND EQUIPMENT/STRUCTURES THAT DELIVER THE TREATED WATER DIRECTLY TO PUBLICLY OWNED WATER TREATMENT FACILITIES TO INCLUDE PIPES, INTAKE STRUCTURES, GATEHOUSES, SCREENS, PUMPING STATIONS, WIERS AND PENSTOCKS:

Apply ALONGLIFE™ for 3 acres or less by pouring directly into ponds, small lakes or reservoirs. ALONGLIFE™ application for 3 acres or more should be applied at several points into ponds, lakes or reservoirs. Larger bodies of water can be treated through metering pump, dragging a feeder hose behind a boat across a body of water or dispensing via conventional spray equipment mounted to a boat onto the surface. ALONGLIFE™ will quickly diffuse throughout the water body in several hours, broad distribution will speed dispersal. No more than ½ of the body of water may be treated in a single application. For small ponds and ornamental water features and fountains or for spot treatments around docks or shoreline, apply ALONGLIFE™ by directly pouring 2 fluid ounces per 125 cubic feet (1/4 tsp or 0.0002 lbs. per 20 gallons) of water for 1 ppm of copper into the water around half of the perimeter of the body of water or at the spot to be treated. When applying from boat, use minimal speed to allow the prop wash to disperse and mix the product into the treated waters. Dispense up to 5.5 gallons or 2.74 lbs. metallic copper per acre-foot of water (see USE RATE chart below). Apply in late spring or early summer when algae/bacteria* first appear. For best results, disperse ALONGLIFE™ evenly to warm, still water on a sunny day when algae are near the surface. Several application points speed up dispersal.

Use rates vary, depending on algae/bacteria* species, water hardness, water temperature, and amount of algae/bacteria* present; as well as whether water is clear, turbid, flowing or static. Preferably, the water should be clear with temperatures above 60ºF (15.6º C). Higher dosages are required at lower water temperatures, higher algae/bacteria* concentrations, and for hard waters. Static water requires less chemical for algae/bacteria* control than does flowing water. Use higher dosages for chara, nitella, and filamentous algae (pond scum), and lower dosages for planktonic algae. If there is uncertainty about the dosage, begin with a lower dose and increase until control is achieved or until the maximum allowable level has been reached (see the use rate chart below).

ALONGLIFE™ is for use in waters destined for use as drinking water, these waters must receive additional and separate potable water treatment. **DO NOT** apply more than 1.0 ppm as metallic copper. Apply by direct application from a moving boat, surface spraying equipment onto the surface of the body of water, from the side of the reservoir at equal intervals or directly to tanks.

Water intended for human use in municipal water reservoirs and tanks:
Use ALONGLIFE™ to control algae/bacteria* in municipal water supplies before they are purified for drinking, Apply 2.4 fluid ounces per 125 cubic feet (1/3 tsp per 20 gallons) of water for 1 ppm of copper. Apply by boat or from side of reservoir/tank at equal intervals.

Reservoirs of water intended for drinking water use:
For the control of algae/bacteria* in water reservoirs destined for use as drinking water, refer to the use rate chart below for the specific application rates. Treated water must receive additional and separate potable water treatment. Applications may be repeated in 14 days. Apply by boat or from side of reservoir at equal intervals.

USE RATES

Pre-Application Dose Determination: For algae and aquatic plant treatments, applicators should conduct initial dose determination tests simulating a full-scale treatment program to determine the minimum efficacious concentrations for eliminating the target species, unless an effective dose is already known for the given target pest population.

Gallons of Product per acre/ft (lbs. Cu^{2+}/Acre Foot)	Equivalent Metallic Copper (ppm)
0.33 (0.16 lbs.)	0.06

Gallons of Product per acre/ft (lbs. Cu^{2+}/Acre Foot)	Equivalent Metallic Copper (ppm)
0.50 (0.25 lbs.)	0.09
3.30 (1.63 lbs.)	0.60
5.50 gals. (2.74 lbs.)	1.00

Do not apply more than the maximum annual application rate of 44.2 gallons ALONGLIFE™ (21.9 lbs of metallic copper) per acre-foot (8 applications per year at up to 1 ppm). This rate/frequency is calculated based on staggering the treatment of each half of the water body every 14 days (at a rate of 5.50 gallon ALONGLIFE™ (2.72 lbs. metallic copper) per acre-foot = 1 ppm) for eight months (244 days). In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 44.2 gallons ALONGLIFE™ (21.9 lbs of metallic copper) per acre-foot (8 applications per year at up to 1 ppm)

CONTROL OF ROOTED AND SUBMERGED PLANTS:
Rooted and submerged plants such as Hydrilla and Potamogeton can be controlled using ALONGLIFE™ at 0.4 – 1.0 ppm which equals 2.64 to 6.60 gals (1.3 to 3.3 lbs of metallic copper) per acre/ft. Application rates are dependent on the density, stage of growth and the water depth. Only treat one half of the body of water at one time. Start at the edge and spray towards the center of the body of water. Applications may be repeated in 14 days.

CONTROL OF FLOATING AQUATIC PLANTS:
Water hyacinth and other floating aquatic vegetation can be suppressed BUT NOT ERADICATED by using a mixture of 1.23 gallons (0.61 lb metallic copper) of ALONGLIFE™ per 7 gallons of water. Apply this solution as a coverage spray to thoroughly wet all exposed vegetation. Only treat one half of the body of water at one time. In areas of heavy infestation, multiple applications may be required. Applications may be repeated in 14 days. **Do not** exceed 6.55 gallons of product (3.24 lbs. metallic copper) per acre foot of water.
Before treating bodies of water, consult proper state authorities, such as the fisheries commission or conservation department to obtain any necessary permits. **Do not** apply copper sulfate to water less than 40 ppm alkalinity without first testing for fish toxicity in a separate container.
Treatment of algae can result in oxygen loss from the decomposition of dead algae, which may cause fish suffocation. Treat one-third to ½ of the water area in a single operation and wait 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow fish to move into untreated areas. In regions where ponds freeze in winter, treatment should be done 6 to 8 weeks before expected freeze time to prevent masses of decaying algae under an ice cover.

Useful formulas for calculating water volume and flow rates:
To find the capacity of water storage containment in gallons:
Multiply the water volume in cubic feet times 7.5
Note: 1 Cubic Foot per Second of Flow = 27,000 gallons per hour
1 Acre Foot = 326,000 gallons

Calculate the Acre-Feet of water in the body of water to be treated by calculating the surface area in square feet. Then divide by 43,560 (sq.ft./acre). Then multiply by the average depth in feet.
1 Acre Foot of Water = an area of water measuring 43,560 sq. ft. x 1 foot deep
1 Acre Foot of Water = 43,560 cubic feet = 325,851.6 gallons
1 Cubic Foot of Water = 62.4 pounds
1 Acre Foot of Water = 43,560 x 62.4 = 2,720,000 pounds

DIRECT AQUATIC RATES

Crop	Maximum per Application Rate (lbs. Cu2+/A)	Maximum Annual Rate (lbs. Cu2+/A)	Minimum Retreatment Interval (days)	Directions
Algae, Cyanobacteria, Aquatic Weeds, (Elodea spp., Hydrilla, Potamogeton spp.,	1 part per million (ppm)	n/a	14	No more than ½ of the water body may be treated at one time. If the treated water is to be used as a source of potable

Crop	Maximum per Application Rate (lbs. Cu2+/A)	Maximum Annual Rate (lbs. Cu2+/A)	Minimum Retreatment Interval (days)	Directions
Irrigation Canal Weed, Annual Naiads) for all aquatic application sites				water, the metallic copper concentration must not exceed 1 ppm.
Schistosome-Infected Freshwater Snail Control	1.5 ppm	n/a	n/a	No more than ½ of the water body may be treated at one time. If the treated water is to be used as a source of potable water, the metallic copper concentration must not exceed 1 ppm.
Leech Control	1.5 ppm	n/a	n/a	No more than ½ of the water body may be treated at one time. If the treated water is to be used as a source of potable water, the metallic copper concentration must not exceed 1 ppm.

TO CONTROL QUAGGA AND ZEBRA MUSSELS IN LAKES, PONDS, LAGOONS, RESERVOIRS, SEDIMENTATION BASINS, CANALS AND DITCHES:
Treat mussels only as a curative measure. Treat ½ of the surface of the body of water at a time. For control of adult and juvenile mussels, apply at the rate of one (1) gallon of ALONGLIFE™ (0.495 lb metallic copper) per 60,000 gallons of water to yield a rate of 1.0 ppm metallic copper (2.72 lbs. metallic copper per acre-foot for a maximum annual rate is 21.9 lbs. metallic copper per acre foot. Monitor the copper concentration and when it falls below the desired concentration, apply additional copper to bring the concentration back up to the desired concentration. Monitor mussel populations and terminate the additional applications once mussels are dead or 14 days have passed since the initial application. Applicators must wait at least 14 days after the last application before making any additional applications. For the control of veligers in the larval mollusk stage, treat at the rate of 3.60 gallons of ALONGLIFE™ (1.78 lbs metallic copper) per 1,000,000 gallons of water to yield a concentration of 0.18 ppm metallic copper. Apply by direct application from a moving boat, surface spraying equipment onto the surface of the body of water, or from the side of the reservoir at equal intervals.

TO CONTROL LEECHES, SLUGS AND SNAILS IN IMPOUNDED WATERS, LAKES, PONDS, LIVESTOCK WATERING SYSTEMS, RESERVOIRS, SWIMMING AREAS, FARM, INDUSTRIAL, RETENTION AND GOLF COURSE PONDS, AQUACULTURE PONDS, BIOLOGICAL FISHPONDS OR SYSTEMS, ORNAMENTAL WATER FEATURES AND FOUNTAINS:

Snails: When snails are present apply ALONGLIFE™ at a rate of 2 ppm on day 1, equivalent to 0.12 ppm as copper. Reapply ALONGLIFE™ at the rate of 1 ppm on days 3, 5 and 7. Repeat weekly as necessary to control snails.

Leaches and Slugs: For effective control, apply at the rate of 2 to 16 ppm ALONGLIFE™ (i.e., 2 to 16 gallons of ALONGLIFE™ (1 to 7.9 lbs metallic copper) per million gallons of water) to yield a rate of 0.120 to 0.96 ppm metallic copper.
Restrictions: **Do not** exceed 1.0 ppm (equivalent to 16.7 ppm ALONGLIFE™) metallic copper in any single application or in the treated water.

FOR THE SUPRESSION OF BACTERIAL ODORS AND TOXIC GASSES IN SEWAGE LAGOONS, FEEDLOT RUNOFF PITS, ANIMAL CONFINEMENT FACILITIES AND ORGANIC SLUDGE PITS CONTAINING ORGANIC MATTER OF ALGAE OR BACTERIA*:
Apply up to 1 Gallon ALONGLIFE™ (0.495 lb metallic copper) per 60,000 gallons (8,000 cubic feet) of organic matter (sewage).
Application rates may vary depending on amounts of sewage in lagoons and pits. Apply by pouring ALONGLIFE™ into the pit or lagoon. Several application points speed up dispersal. For faster results, disperse ALONGLIFE™ evenly throughout sewage. Bacterial odors should be noticeably reduced in 1-2 weeks. Repeat application when odors recur. Minimum retreatment interval is 14 days.

Feedlot Runoff Lagoons: Add an equal portion of the required dosage of ALONGLIFE™ mentioned above at several locations around the lagoon to speed dispersal of the product. A minimum of two (2) applications per year (spring and fall) is recommended. Additional applications may be required as needed or when the lagoon is pumped.

Animal Confinement Pits: If pits are located under the confinement buildings, add ALONGLIFE™ at the rate specified above directly to these pits. If the pits are outside, add ALONGLIFE™ at the rate specified above to the transfer line to the pit.

Organic Sludge Pits: Apply one (1) Gallon ALONGLIFE™ (0.495 lb metallic copper) in 60,000 gallons of sludge, mixing thoroughly.

TO CONTROL ALGAE AND SUPRESS BACTERIAL* GROWTH IN SWIMMING POOLS, SPAS & HOT TUBS: Apply at the rate of 2.88-5.76 quarts of ALONGLIFE™ (0.356-0.712 lb metallic copper) per 60,000 gallons (6,680 cu. Ft.), (0.5 to 1.0 ppm metallic copper) to control bacterial odors and algae throughout the year. **Do not** apply more than 5.76 quarts of ALONGLIFE™ (0.712 lb metallic copper) per 60,000 gallons per application.

For hot tubs or spas, apply at a rate of 0.1 – 0.2 fl. oz. of ALONGLIFE™ per 100 gallons of water. Measure the amount of product to be used with a calibrated measuring device. **Do not** use a measurement cup or device that may also be used for human or pet food. For best results, apply before visible algae appear. If visible algae are present, use the higher rate. For maintenance treatment and where visible algae are not present, use the lower rate. **Do not** apply more than 0.2 fl. oz. of ALONGLIFE™ per 100 gallons of water per application.

Every 14 days, test the copper level using a standard commercial swimming pool copper test kit. Add ALONGLIFE™ to raise level back to 0.9 ppm (see tables). The amount of ALONGLIFE™ to be added is proportional to the starting concentration and volume of water. **Do not** exceed 1.0 ppm metallic copper.

MAINTAINING METALLIC COPPER CONCENTRATION IN POOLS

Pool Volume (gallons)	**7,000**	**8,000**	**9,000**	**10,000**	**11,000**	**12,000**	**13,000**	**14,000**
Measured Metallic Copper Level in Pool	**ADDITIONAL FLUID OUNCES OF ALONGLIFE™ ADDED TO MAINTAIN CONTROL**							
0.9 ppm	0	0	0	0	0	0	0	0
0.8 ppm	1.9	2.0	2.3	2.6	2.8	3.1	3.3	3.6
0.7 ppm	3.6	4.1	4.6	5.1	5.6	6.0	6.7	7.2
0.6 ppm	5.4	6.1	6.9	7.7	8.4	9.1	10.0	10.8
0.5 ppm	7.2	8.2	9.2	10.2	11.2	12.1	13.3	14.3
0.4 ppm	9.0	10.2	11.5	12.8	14.1	15.4	16.7	17.9
0.3 ppm	10.7	12.2	13.8	15.4	16.9	18.4	20.0	21.5
0.2 ppm	12.5	14.3	16.1	17.9	197	21.5	23.3	25.0
0.1 ppm	14.3	16.4	18.4	20.5	22.5	24.6	26.6	28.6

MAINTAINING METALLIC COPPER CONCENTRATION IN SPAS

Spa Volume (gallons)	**100**	**200**	**300**	**400**	**500**	**700**	**800**	**900**	**1,000**
Measured Metallic Copper Level in Spa	**ADDITIONAL MILLILITERS OF ALONGLIFE™ ADDED TO MAINTAIN CONTROL**								
0.9 ppm	0	0	0	0	0	0	0	0	0
0.8 ppm	0.9	1.6	2.4	3.2	4.0	5.6	6.4	7.2	8.0
0.7 ppm	1.6	3.6	4.0	7.2	7.8	10.9	14.5	14.0	15.6
0.6 ppm	2.2	4.5	6.0	9.1	11.4	16.0	18.2	20.4	22.7
0.5 ppm	3.1	6.2	8.0	12.3	15.4	21.7	24.6	27.7	30.8
0.4 ppm	3.0	7.6	9.0	15.2	18.9	26.5	30.4	34.0	37.9
0.3 ppm	4.5	9.0	11.0	18.1	22.6	31.6	36.0	40.7	45.2
0.2 ppm	5.3	10.6	13.0	21.2	26.5	37.1	42.4	47.7	53.0
0.1 ppm	6.1	12.1	15.0	24.2	30.3	42.4	48.4	54.5	60.5

An alternate method is to apply at the rate of one (1) fluid ounce of ALONGLIFE™ 1,000 gallons of water. This will yield a rate of 0.39 ppm metallic copper. Repeat a maintenance dosage of one (1) fluid ounce of ALONGLIFE™ per 1,000 gallons of water once a month to maintain control. Application should be made before visible algae appear. Where visible algae are present apply at a rate of 2 fluid ounces of ALONGLIFE™ per 1,000 gallons of water. This will yield a rate of 0.78 ppm metallic copper.

Before draining a treated pool, spa, or hot tub, contact your local sanitary sewer and storm drain authorities and follow their discharge instructions. **Do not** discharge treated pool or spa water to any location that flows to a gutter, storm drain or natural water body unless discharge is allowed by state and local authorities.

FOR CONTROL OF ALGAE AND BACTERIAL STAINING ON ROOFING MATERIALS:
For the control of algae, bacterial staining treatment is effective on, asphalt shingles (all types), concrete, clay, barrel/flat tile and stone roofs.
Application should be made by professional applicators only. Pre-cleaning the roof (pressure cleaning) is only to be done to concrete, clay or stone roofs and only when there is a heavy discoloration due to algae, bacterial staining and fungi infestation. For the control of algae, bacterial staining and fungi on these types of roofing materials, use a dilution rate of four fluid ounces of ALONGLIFE™ to one (1) gallon of water. This dilution will cover approximately 100 square feet. Application is to be made by a professional applicator using a low-pressure wand sprayer with a fine mist tip. For best results, application should be made while standing on the roof and spraying from a distance of 1.5 to 2 feet. Apply when a period of no significant rain is expected. No rinsing is required.

For asphalt shingles, never pre-clean. Use a dilution of four fluid ounces per one (1) gallon of water. If the roof shows a heavy infestation of algae, bacterial staining and fungi (dirty roof), a stronger dilution of six fluid ounces per one (1) gallon of water should be used. This dilution will cover approximately 100 square feet. Application is to be made by a professional applicator using a low-pressure wand sprayer with a fine mist tip. For best results, application should be made while standing on the roof and spraying from a distance of 1.5 to 2 feet. Apply when a period of no significant rain is expected. No rinsing is necessary.

One application will eliminate the infestation of algae, bacterial staining and fungi and return the roofing materials to their original color within 3-6 months. With moderate rain events, this time may be reduced in half. Treatment of all types of roofing materials will last upwards of two years. **Do not** apply directly to foliage, grass, or trees and direct any run-off from the roof and gutters away from foliage, grass, and trees to prevent any damage.

Application may be made on all roofing materials within the temperature range of 32º and 150º Fahrenheit.

FOR THE REMEDIAL TREATMENT OF MOLD TO INHIBIT ITS GROWTH ON CONSTRUCTION MATERIALS:

Remedial treatment to inhibit the growth of mold on construction materials consists of, but is not limited to, plywood, roof sheeting, OSB board, trusses, wood studs, furring strips, support members, wood framing, exterior siding, baseboards, CBS block and concrete tie beams. Use a spray rate of four (4) oz. of ALONGLIFE™ per one (1) gallon of water for sprayers. There is no agitation needed. Application may be made by a manual pump up sprayer, a 12v electric sprayer, or a gas/electric diaphragm pump sprayer. The spray pattern must be a fine controllable mist that covers 100 sq. ft. per one (1) gallon of mixed product. ALONGLIFE™ is not to be used on any painted surfaces.

FOR CONTROL OF ALGAE, BACTERIAL STAINING AND FUNGI ON CLAY AND COMPOSITION MATERIAL TENNIS COURTS:

Application should be made by trained applicators only. Pre-cleaning of the court is necessary only to remove surface debris as in sweeping. Use a dilution rate of four (4) fluid ounces of ALONGLIFE™ per one (1) gallon of water. This dilution will cover approximately 100 square feet. Application should be made using a low pressure wand sprayer with a fine mist tip. (i.e. back-pack sprayer). For best results, spray from a distance of 1.5 to 2 feet. Apply when a period of no significant rain is expected. No rinsing is necessary. For initial treatment with an extremely heavy infestation of algae, bacterial staining and fungi, a dose of one (1) quart per one (1) gallon of water may be needed. Avoid run off wherever possible. **Do not** apply directly to foliage, grass or trees to prevent damage. Application may be made on clay courts within the temperature range of 32ºF and 150º Fahrenheit. Re-treatment of courts is dependent on variations in weather conditions. In cooler, drier temperatures, treatment will last 6 months to a year with spot re-treatments being done as needed, with doses as low as one (1) fluid ounce per one (1) gallon of water. In hotter, more humid temperatures, treatments will last 1 to 6 months with spot re-treatments being done as needed with doses as high as six (6) fluid ounces per one (1) gallon of water.

FOR CONTROL OF ROOT GROWTH IN SEWER PIPES AND COMMERCIAL, INDUSTRIAL AND MUNICIPAL SANITARY SEWERS:
During periods of low flow use one (1) gallon (0.495 lbs. of metallic copper) of ALONGLIFE™ each 6 to 12 month period at each junction or terminal ahead of where there may be a root problem. To be effective. the sewer must be opened sufficiently to permit some water flow. This can be attained by mechanical or chemical means. **Do not** apply more than maximum annual application rate of 2 gallons of ALONGLIFE™ (1 lb. metallic copper) per linear foot per year.

Storm Sewers: Use one (1) gallon of ALONGLIFE™ each 300 to 400 feet per year. Make application during period of light flow. In dry weather, introduce a flow with a hose. If storm drains become almost plugged, repeat treatment three to four times at two week intervals.

Household Sewers: Use ALONGLIFE™ twice yearly at the rate of one (1) quart to each 75 to 100 feet of sewer. Apply in toilet nearest sewer line at night or during periods of low flow. Flush toilet after each quart of application. If sewer is completely blocked, use mechanical or chemical methods to obtain some flow. Follow with repeat treatments until free flow is restored. Then resume semi-annual preventative treatments. NOTE: **Do not** apply in sink or tub drains. **Do not** apply more than maximum annual application rate of 2 gallons of ALONGLIFE™ (1 lb. metallic copper) per linear foot per year.

FOR CONTROL OF ALGAE AND SLIME IN INDUSTRIAL AND COMMERCIAL RECIRCULATING COOLING TOWERS:
ALONGLIFE™ is formulated to provide control of the growth of algae and slime in recirculating water cooling systems and evaporative coolers.

Initial Manual Dose: When heavy growths are present, clean the system before initial treatment**.** When the system is fouled, add directly to the sump ½ fl. oz. per 250 gallons of water (.09375 ppm metallic copper) in the system. Repeat Daily until control is achieved.

Subsequent Manual Dose: As water evaporates and new water is replenished in the cooling tower, maintenance applications will be necessary to maintain algae control. For every 250 gallons of water replenished in the system, add ½ fl. oz. of product.

For continuous use with Chemical Feed Devices: One (1) gallon of ALONGLIFE™ (0.495 lb metallic copper) in 60,000 gallons of water yields one (1) ppm metallic copper. Never exceed this amount with continuous feed systems

FOR CONTROL OF CITRUS CANKER CONTAMINATION WASH AND DRENCH STATIONS:
For the prevention of the spread of Citrus Canker Disease between hard, non-porous surfaces and from these surfaces to citrus plants (not for treatment of infected citrus plants at these use rates). Before adding ALONGLIFE™ to tank, adjust pH of carrier water to seven (7) or below. Treat all trucks, vehicles, and equipment thoroughly at the dilution rate of one (1) gallon ALONGLIFE™ (0.495 lb metallic copper) to each one thousand (1,000) gallons of water. Treatment can be applied to all hard, non-porous clothing (not being worn), trucks, attached trailers, field harvesting equipment, including cargo areas, wheels, tires, under carriage, hood, roof, fenders and any other parts of transportation equipment that can be taken into infested areas.

STORAGE AND DISPOSAL

Pesticide Storage: Store in a safe place away from PETS AND KEEP OUT OF THE REACH OF CHILDREN. Store between 40° and 120° F, away from excessive heat. ALONGLIFE™ will freeze. Always keep container closed. Store ALONGLIFE™ in its original container only. Bulk ALONGLIFE™ shall be stored and handled in stainless steel, fiberglass, polypropylenes, PVCs or plastic equipment. Keep away from galvanized pipe and any nylon storage or handling equipment.

Pesticide Disposal: Excess ALONGLIFE™ must be disposed of through use. **Do not** contaminate lakes, rivers, or streams as this may cause fish kills. Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label directions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.
In the event of a spill, neutralize with limestone or baking soda before disposal. May deteriorate concrete.

CONTAINER HANDLING:
For Nonrefillable Containers ≤5 gallons: Nonrefillable container. **Do not** reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Offer for recycling if available. If recycling is not available, puncture and dispose of in a sanitary landfill.

For Nonrefillable Containers >5 gallons: Nonrefillable container. **Do not** reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth times. Turn the container over onto its other end and tip it back and forth several times. Empty rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Offer for recycling if available. If recycling is not available, puncture and dispose of in a sanitary landfill.

For Refillable Containers: Refillable container. Refill this container with pesticide only. **Do not** reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10 percent full of water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

LIMITED WARRANTY AND LIMITATION OF REMEDIES

To the extent consistent with applicable law, seller warrants that the product conforms to the chemical description and is reasonably fit for the purpose stated on the label for use under normal conditions, but makes no other warranties of FITNESS OR MERCHANTABILITY, expressed or implied, or any other warranty if the product is used contrary to the label directions, or under abnormal conditions or under conditions not foreseeable to the seller. To the extent consistent with applicable law, in no case shall the seller be liable for more than the cost of this product to the buyer and will in no event be liable for any consequential, special or indirect damages connected with the use or handling of this product. To the extent consistent with applicable law, this product is offered and the buyer or user accepts it subject to the foregoing terms which may not be varied.

Sub Label B: Agricultural Crop Use

Copper Sulfate Pentahydrate	GROUP	M01	FUNGICIDE
Copper Sulfate Pentahydrate	GROUP	NOT CLASSIFIED	HERBICIDE

ALONGLIFE™

{**Alternate Brand Names:** TerraTec, RiceTec, AquaTec, Septi-Life , Lake-Life, Pool-Life, Industri-Life, Along-Life}

Fungicide / Bactericide*/ Algaecide

ACTIVE INGREDIENT:
•Copper Sulfate Pentahydrate (CAS #7758-99-8).....19.8%
OTHER INGREDIENTS:.....80.2%
TOTAL:.....100.0%

•5% Metallic Copper Equivalent
ALONGLIFE™ contains 0.495 pounds of metallic copper per gallon.
ALONGLIFE™ is a fully dissolved copper product.

KEEP OUT OF REACH OF CHILDREN

DANGER / PELIGRO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
(If you do not understand the label, find someone to explain it to you in detail.)

Non-Flammable

DO NOT FREEZE

[See [back] [label] [booklet] for [Additional Precautionary Statements] [and] [Use Directions].]

EPA Reg. No. 88930-1
EPA Est. No.
NET CONTENTS: 9.9 lbs. per Gallon 1.188 Kg/L

FIRST AID

Have the product container or label with you when calling a poison control center or doctor or going for treatment. For emergency information, call the National Poison Center at 1-800-222-1222.

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 center or physician immediately for treatment advice.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor immediately for treatment advice.

If Swallowed: Call a poison control center or doctor immediately for advice. Have the person sip a glass of water if able to swallow. **Do not** induce vomiting unless told to do so by the poison control center or doctor. **Do not** give anything by mouth to an unconscious person.

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

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

[Manufactured for:] [Manufactured by:] [Distributed for:] [Distributed by:] Life Science Group, Inc.
Highland, Michigan, USA – (248) 438-5323
[Made in the U.S.A.]

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

DANGER

Corrosive. Causes irreversible eye damage. **Do not** get in eyes or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Harmful if swallowed, inhaled or absorbed through skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

For applications in waters destined for use as drinking water, those waters must receive additional and separate potable water treatment. **Do not** apply more than 1.0 ppm as metallic copper in these waters.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Mixers loaders, applicators and other handlers must wear:

- Protective eyewear (goggles, face shield, or safety glasses).
- Long-sleeved shirt.
- Long pants, shoes and socks.
- Waterproof or chemical-resistant gloves such as barrier laminate; butyl rubber ≥14 mil; nitrile rubber ≥14 mil; neoprene rubber ≥14 mil; polyvinyl chloride (PVC) ≥14 mil; or viton≥14 mil.
- For overhead exposure wear chemical-resistant headgear.

Engineering Controls Statements:
When handlers use closed systems, enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d) (4-6), the handler PPE requirements may be reduced or modified as specified in the WPS. Pilots must use an enclosed cab that meets the definition listed in the WPS for agricultural pesticides [40 CFR 170.305].

USER SAFETY RECOMMENDATIONS

Users should:

1) Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
2) Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
3) Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Follow manufacturer's directions for cleaning/maintaining PPE. If no such directions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate and **do not** reuse them.

PHYSICAL OR CHEMICAL HAZARDS

Do not use near or in containers composed of iron. **Do not** mix or allow coming in contact with reducing agent. Hazardous chemical reaction may occur.

ENVIRONMENTAL HAZARDS

Fish Advisory Statement: This copper product is toxic to fish and aquatic organisms. Unlike most organic pesticides, copper is an element and will not break down in the environment and will therefore accumulate in sediment with repeated applications. Copper is a micronutrient, but its pesticidal application rate exceeds the amount of copper needed as a nutrient.

Waters treated with this product may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead biomass. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, **do not** treat more than ½ of the water body (excluding water infrastructure and constructed conveyances such as drainage canals, ditches and pipelines or intakes and aqueducts for drinking water or irrigation use) to avoid depletion of oxygen due to decaying vegetation. Wait at least 14 days between treatments. Begin treatment along the shore and proceed outward in bands to allow fish to move into untreated areas. Consult with the state or local agency with primary responsibility for regulating pesticides before applying to public waters to determine if a permit is required. Application of algaecides to high density blooms of cyanobacteria can result in the release of intracellular contents into the water. Some of these intracellular compounds are known mammalian hepato- and nervous system toxins. Therefore, to minimize the risk of toxin

leakage, manage cyanobacteria effectively in order to avoid applying this product when blooms of toxin-producing cyanobacteria are present at high density. In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper at intervals shorter than 14 days should the circumstance demand.
Certain water conditions including low pH (≤6.5), low dissolved organic carbon (DOC) levels (3.0 mg/L or lower) and "soft" waters (i.e. alkalinity less than 50 mg/L) increases the potential acute toxicity to non-target aquatic organisms. The application rates on this label are appropriate for water with pH values > 6.5, DOC levels >3.0 mg/L, and alkalinity greater than 50 mg/L. Avoid treating waters with pH values <6.5, DOC levels >3.0, and alkalinity less than 50 ppm (e.g., soft or acid waters), as trout and other sensitive species of fish may be killed under such conditions if present.
Consult your state department of natural resources or fish and game agency before applying this product to public waters. Permits may be required before treating such waters.

For terrestrial uses, this pesticide is toxic to fish and aquatic invertebrates and may contaminate water through runoff. This product has a potential runoff for several months or more after application. Poorly drained soil and soils with shallow water tables are more prone to produce runoff that contains this product. Draft and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. For terrestrial uses, **do not** apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. **Do not** contaminate water when disposing of equipment washwater or rinsate.

PRODUCT INFORMATION:
[ALONGLIFE™ is used to control algae or bacteria* in impounded waters, lakes, ponds, livestock watering systems, reservoirs or irrigation canals.]

[ALONGLIFE™ is used to control algae or bacteria* in non-sprinkler, non-drip irrigation conveyance and chemigation systems, and similar open irrigation conveyances.]

[ALONGLIFE™ is used to control algae or bacteria* in sprinkler, drip or other types of closed irrigation equipment.]

[ALONGLIFE™ is used to control algae or bacteria* in biological fish ponds and aquaculture systems.]

[ALONGLIFE™ is used for extending the shelf life of listed fruits, vegetables and other plants by reduction of the bacteria* and fungi that cause spoilage in post-harvest raw fruits, vegetables and other plants from nurseries, greenhouses and fields.]
[ALONGLIFE™ is used to control algae and tadpole shrimp in rice fields.]
[ALONGLIFE™ is used for control of plant diseases in listed food and non-food crops, tropical foliage plants, annual/perennial plants, potted flowering plants, shrubs and vines, trees and turfgrass in nurseries, greenhouses and fields.]

Copper is a micronutrient, but its pesticidal application rate exceeds the amount of copper needed as a nutrient.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. **Do not** apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirement specific to your State and Tribe, consult the State or Tribal agency responsible for pesticide regulation.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard (WPS), 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted entry interval (REI). The requirements in this box only apply to uses of this product that are covered by the WPS.
Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 48 hours.

For greenhouse uses, the REI may be reduced to 24 hours provided that the following conditions are met:
For at least 7 days following the application of this product in greenhouses:

- At least one container or station designed specifically for flushing eyes is available in operating conditions with the WPS-required decontamination supplies for workers entering the area treated with this product.
- Workers are informed orally in a manner they can understand that, **i)** residues in the treated area may be highly irritating to the eyes, **ii)** they should take precautions, such as refraining from rubbing their eyes to keep the residues out of their eyes, **iii)** if they do get residues in their eyes, they should immediately flush their eyes with the eye flush container or in the eye flush station that is located with the decontamination supplies, and **iv**) how to operate the eye flush container or eye flush station.

PPE required for early entry to treated areas that is permitted under the WPS and that involves contact with anything that has been treated, such as plants, soil or water is: Coveralls, waterproof or chemical-resistant gloves such as barrier laminate, butyl rubber ≥14 mil, nitrile rubber ≥14 mil, neoprene rubber ≥14 mil, polyvinyl chloride (PVC) ≥14 mil, or viton≥14 mil, protective eyewear, and shoes plus socks.

NON-AGRICULTURAL USE REQUIRMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. **Do not** allow people or pets to enter treated areas until sprays have dried.

RESISTANCE MANAGEMENT

Copper Sulfate Pentahydrate	GROUP	M01	FUNGICIDE
Copper Sulfate Pentahydrate	GROUP	NOT CLASSIFIED	HERBICIDE

For resistance management, ALONGLIFE™ contains a Group M01 fungicide/bactericide*. Any fungal/bacterial population may contain individuals naturally resistant to ALONGLIFE™ and other Group M01fungicides/bactericides. A gradual or total loss of pest control may occur over time if these fungicides/bactericides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay fungicide/bactericide resistance, take one or more of the following steps:

- Rotate the use of ALONGLIFE™ or other Group M01 fungicides/bactericides within a growing season sequence with different groups that control the same pathogens.
- Use tank mixtures with fungicide/bactericides from a different group that are equally effective on the target pest when such use is permitted. Use at least the minimum application rate as labeled by the manufacturer.
- Adopt an integrated disease management program for fungicide/bactericide use that includes scouting, uses historical information related to pesticide use, and crop rotation, and which considers host 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. Note that using predictive models alone is not sufficient to manage resistance.
- Monitor treated fungal/bacterial populations for resistance development.
- Contact your local extension specialist or certified crop advisor for any additional pesticide resistance-management and/or IPM recommendations for specific crops and pathogens.
- For further information or to report suspected resistance contact Life Science Group at (248) 438-5323. You can also contact your pesticide distributor or university extension specialist to report resistance.

The multi-site activity grouping, designated by the symbol “M01”, comprises a collection of various chemicals that act as general toxophores with several sites of action. These sites may differ between group members.

Suspected herbicide-resistant weeds may be identified by these indicators:

- Failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds;
- A spreading patch of non-controlled plants of a particular weed species; and,
- Surviving plants mixed with controlled individuals of the same species.

Water bodies or management units should be scouted prior to application to identify the weed species present and their growth stage to determine if the intended application will be effective. Water bodies or management units should be scouted after application to verify that the treatment was effective.

Report any incidence of non-performance of this product against a particular weed species to your retailer, representative or call (248) 438-5323. If resistance is suspected, treat weed escapes with an herbicide having a different mechanism of action and/or use non-chemical means to remove escapes, as practical, with the goal of preventing further reproduction.

Implement the Early Detection, Rapid Response practice and Maintenance Control by using the following practices where possible:

- Identify weeds present in a management unit through scouting or history of the water body and understand the biology of target species.
- Applications should target weeds when populations are small and there is low biomass, early in the season to maximize efficacy.
- Applications should be made so that the herbicide contacts the weed. Use the appropriate application method for the use site/weed/chemical combination.
- Weed escapes should not be allowed to go to seed or produce asexual vegetative propagules.
- Use a diversified approach toward weed management. Whenever possible incorporate multiple weed-control practices such as mechanical control, biological management practices, and rotation of MOAs.
- Time applications to have the highest probability for control and minimize need for follow-up control measures. Apply during conditions that minimize herbicide degradation (light /temperature/microbes) and/or dissipation (water exchange).

Contact your local sales representative, local water management agency, or extension agent to find out if suspected resistant weeds to this MOA have been found in your region. If resistant biotypes of target weeds have been reported, use the application rates of this product specified for your local conditions. Tank mix products so that there are multiple effective mechanisms of actions for each target weed.

Maximum Annual Application Rates for Aquatic Uses in Impounded Waters, Ponds, Lakes, and Reservoirs:
Maximum annual application rate of 21.9 lbs. of metallic copper per acre-foot (8 applications per year at up to 1 ppm). This rate/frequency is calculated based on staggering the treatment of each half of the water body every 14 days (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) for eight months (244 days). In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 21.9 lbs. of metallic copper per acre-foot (8 applications per year at up to 1 ppm).

For Large Bodies of Water Separated Into Sections (Water Management Units):
Maximum annual application rate of 46.6 lbs. of metallic copper per acre-foot per year (17 applications per year at up to 1 ppm). This rate/frequency is calculated based on the maximum number of possible applications allowed based on a 14-day minimum (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) retreatment interval for eight months (244 days). Do not apply more than 46.6 lbs. of metallic copper to a water management unit, regardless of the pest(s) targeted by applications. In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 46.6 lbs. of metallic copper per acre-foot per year for a single water management unit.

Aquatic Uses:
This pesticide is toxic to fish and aquatic invertebrates. Waters treated with this product may be hazardous to aquatic organisms. Treatment of aquatic weeds and algae can result in oxygen loss from decomposition of dead algae and weeds. This oxygen loss can cause fish and invertebrate suffocation. To minimize this hazard, **do not** treat more than ½ of the water body (excluding water infrastructure and constructed conveyances such as drainage canals, ditches and pipelines or intakes and aqueducts for drinking water or irrigation uses) to avoid depletion of oxygen due to decaying vegetation. Wait at least 14 days between treatments. Begin treatment along the shore and proceed outwards in bands to allow fish to move into untreated areas. Consult with the State or local agency with primary responsibility for regulating pesticides before applying to public

waters, to determine if a permit is required. Application of algaecides to high density blooms of cyanobacteria can result in the release of intracellular contents into the water. Some of these intracellular compounds are known mammalian hepato- and nervous system toxins. Therefore, to minimize the risk of toxin leakage, manage cyanobacteria effectively in order to avoid applying this product when blooms of toxin-producing cyanobacteria are present at high density. In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper at intervals shorter than 14 days should the circumstance demand.

Certain water conditions including low pH (≤6.5), low dissolved organic carbon (DOC) levels (3.0 mg/L or lower), and "soft" waters (i.e., alkalinity less than 50 mg/L), increases the potential acute toxicity to non-target aquatic organisms. The application rates on this label are appropriate for water with pH values > 6.5, DOC levels >3.0 mg/L, and alkalinity greater than 50 mg/L. Avoid treating waters with pH values <6.5, DOC levels >3.0, and alkalinity less than 50 ppm (e.g., soft or acid waters), as trout and other sensitive species of fish may be killed under such conditions if present. Consult your state department of natural resources or fish and game agency before applying this product to public waters. Permits may be required before treating such waters Consult your state department of natural resources or fish and game agency before applying this product to public waters. Permits may be required before treating such water.

APPLICATION AND HANDLING EQUIPMENT

Application, handling or storage equipment MUST consist of either fiberglass, PVCs, polypropylenes, Viton, most plastics, aluminum or stainless steel. Never use mild steel, nylon, brass or copper around full strength ALONGLIFE™. Always rinse equipment free and clean of ALONGLIFE™ each night with plenty of fresh, clean water. Always store ALONGLIFE™ above 32ºF. Freezing may cause product separation. Seller makes no warranty for the performance of product which has been frozen.

SPRAY DRIFT MANAGEMENT

A variety of factors including weather conditions (e.g., wind direction, wind speed, temperature, relative humidity) and the method of application (e.g. ground, chemigation) can influence pesticide drift.
The applicator must evaluate all factors and make appropriate adjustments when applying this product.

Droplet Size: Applicators are required to use a medium or coarser droplet size (ASABE S572.1).

Wind Speed: **Do not** apply at wind speeds greater than 15 mph. Only apply this product if the wind direction favors on-target deposition (approximately 3 to 10 mph), and there are no sensitive areas within 250 feet downwind.

Temperature Inversions: If applying at wind speeds less than 3 mph, the applicator must determine if a) conditions of temperature inversion exist, or b) stable atmospheric conditions exist at or below nozzle height. **Do not** make applications into areas of temperature inversions or stable atmospheric conditions.

Other State and Local Requirements: Applicators must follow all state and local pesticide drift requirements regarding application of copper compounds. Where states have more stringent regulations, they must be observed.

Equipment: All aerial and ground application equipment must be properly maintained and calibrated using appropriate carriers or surrogates.

SPRAY DRIFT

Aerial Application:

Do not release spray at a height greater than 10 ft. above the vegetative canopy or water, unless a greater application height is necessary for pilot safety.

- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- **Do not** apply when wind speed exceeds 15 mph at the application site. If the windspeed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- Applicators must use ½ swath displacement upwind at the downwind edge of the application area.
- **Do not** apply during temperature inversions.

Ground Boom Application:

- Apply with the spray release height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy.
- Applicators are required to use a medium or coarser droplet size (ASABE S572.1).
- **Do not** apply when wind speeds exceed 15 miles per hour at the application site.
- **Do not** apply during temperature inversions.

SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

IMPORTANCE OF DROPLET SIZE:

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size – Ground Boom

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

Controlling Droplet Size – Aircraft

- Adjust Nozzles - Follow nozzle manufacturer's recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

Boom Height – Ground Boom

Use the lowest boom height that is compatible with the spray nozzles that will provide uniform coverage. For ground equipment, the boom should remain level with the crop and have minimal bounce.

Release Height - Aircraft

Higher release heights increase the potential for spray drift. When applying aerially to crops, **do not** release spray at a height greater than 10 ft. above the crop canopy, unless a greater application height is necessary for pilot safety.

Shielded Sprayers - Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

Temperature and Humidity - When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

Temperature Inversions - Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion,

while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

Wind - Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS. Applicators need to be familiar with local wind patterns and terrain that could affect spray drift

PRECAUTIONS

- This product may be reactive on masonry and metal surfaces such as galvanized roofing. Avoid contact with metal surfaces
- Environmental conditions such as extended periods of wet weather, acid rain, etc., which alter the pH of the leaf surface may affect the performance of ALONGLIFE™ resulting in possible phytotoxicity or loss of effectiveness.
- It must be determined in the selection process if proper application equipment is available and if the waste associated with its use can be properly handled. Materials used on the construction of application equipment is also an important factor as agricultural chemicals are often reactive with soft metals such as aluminum and even some synthetic materials such as plastics, rubbers, etc. Therefore, it is necessary when working with equipment containing these materials, that they are thoroughly flushed with clean water after each day's use.

RESTRICTIONS

- **Do not** mix ALONGLIFE™ with acidic compounds such as products containing aluminum or apply to crops within 14 days before or after application of same.
- **Do not** spray on cars, houses, lawn furniture, etc.
- **Do not** mix with pot ash.
- Pilots must use an enclosed cab that meets the definition listed in the WPS for agricultural pesticides [40 CFR 170.305].

CHEMIGATION DIRECTIONS

Apply this product only through one or more of the following types of systems: Sprinkler including center pivot, lateral move, end row, side (wheel) roll, traveler, big gun, solid set or hand move: flood (basin); furrow; border or drip (trickle) irrigation and system(s). **Do not** apply this product through any other type of irrigation systems.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. If you have questions about calibration, you should contact State Extension specialists, equipment manufacturers or other experts.
Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label prescribed safety device for public water systems is in place.

A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise. Posting areas to be chemigated is required when:

a) Any part of a treated area is within 300 feet of sensitive areas such as residential areas, labor camps, businesses, day care centers, hospitals, in-patient clinics, nursing homes or any public areas such as schools, parks, playgrounds or other public facilities not including public roads, or
b) Chemigated area is open to the public such as golf courses or retail greenhouses.

Posting must conform to the following requirements. Treated areas shall be posted with signs at all usual points of entry and along likely routes of approach from the listed sensitive area. When there are no usual points of entry, signs must be posted in the corners of the treated areas and any other locations affording maximum visibility to sensitive areas. The printed side of the sign should face away from the treated area towards the sensitive area. The signs shall be printed in English. Signs must be posted prior to application and. must remain posted until foliage has dried and soil surface water has disappeared. Signs may remain in place indefinitely as long as they are composed of materials to prevent deterioration and maintain legibility for the duration of the posting period.

All words shall consist of letters of at least 2 ½ inches tall, and all letters and the symbol shall be in a color which sharply contrasts with their immediate background. At the top of the sign shall be the words KEEP OUT, followed by an octagonal stop sign symbol at least 8 inches in diameter containing the word STOP. Below the symbol shall be the words PESTICIDES IN IRRIGATION WATER. This sign is in addition to any sign posted to comply with the Worker Protection Standard.

CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
Chemigation systems connected to public water systems must contain a functional, reduced pressure zone (RPZ), backflow preventer or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the

public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete break (air gap) between the flow outlet end of the fill pipe and the top of the overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of liquid back toward the injection. The pesticide injection pipeline must contain a functional, normally closed, solenoid operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where the pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (i.e. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

When mixing, agitation is not necessary. Adjust the pH of the water to 7 or below. If using stickers, spreaders, insecticides, nutrients, etc., add ALONGLIFE™ last. If compatibility is in question, use a compatibility jar test before mixing a whole tank. Because of a wide variety of possible combinations which can be encountered, observe all cautions and limitations on the label of all products used in the mixtures.

ALONGLIFE™ may be added through a traveling system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. ALONGLIFE™ readily disperses and needs no agitation.

SPRINKLER AND DRIP (TRICKLE) CHEMIGATION

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement pump (i.e. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. **Do not** apply when wind speed favors drift beyond the area intended for treatment.

When mixing, agitation is not necessary. Adjust the pH of the carrier water to 7 or below. If using stickers, spreaders, insecticides, nutrients, etc., add the ALONGLIFE™ last. If compatibility is in question, use a compatibility jar test before mixing a whole tank. Because of a wide variety of possible combinations which can be encountered, observe all cautions and limitations on the label of all products used in the mixtures.

ALONGLIFE™ may be added through a traveling irrigation system or at the last 30 minutes of solid set or hand moved irrigation systems. ALONGLIFE™ readily disperses and needs no agitation.

FLOOD (BASIN), FURROW AND BORDER CHEMIGATION

Systems using a gravity flow pesticide dispensing system must meter the pesticide into the water at the head of the field and downstream of a hydraulic discontinuity such as a drop structure or weir box to decrease potential for water source contamination from back flow if water flow stops.

Systems utilizing a pressurized water and pesticide injection system must meet the following requirements:

a) The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination back flow.
b) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
c) The pesticide injection pipeline must also contain a functional, normally closed, solenoid operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
d) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
e) The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
f) Systems must use a metering pump, such as a positive displacement pump (i.e. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

When mixing, agitation is not necessary. Adjust the pH of the carrier water to 7 or below. If using stickers, spreaders, insecticides, nutrients, etc., add the ALONGLIFE™ last. If compatibility is in question, use a compatibility jar test before mixing a whole tank. Because of a wide variety of possible combinations which can be encountered, observe all cautions and limitations on the labels of all products used on the mixtures. ALONGLIFE™ may be added through a traveling irrigation system continuously or at the last 30 minutes of solid set or hand moved irrigation systems. ALONGLIFE™ readily disperses and needs no agitation.

FOR SPRAY AND SOIL DRENCH APPLICATIONS

Always spray for total foliage coverage. When re-spraying, the rates and severity of the disease vary with unforeseen conditions. However, in the event of severe disease, spraying intervals can be shortened see 'Minimum Retreatment Interval' column for the shortest interval between applications. At times, lower rates can be as effective as higher rates and should be tried first. Usually, preventive programs may be maintained at lower rates. Use of low volume spraying is effective against Botrytis but not effective against established powdery mildew and Xanthomonas infections. Also, applications on actively growing tissue may be more effective than applications on dormant tissue.

MINIMUM SPRAY VOLUME (GALLONS) PER ACRE WHEN APPLYING ALONGLIFE™

	GROUND		
CROP	**AERIAL**	**DILUTE**	**CONCENTRATE†**
Citrus	10	125	30
Field Crops	3	20	30
Small Fruits	5	150	30
Tree Crops	10	400	50
Vegetables	3	20	30
Vines	5	150	30

†Pesticide application equipment such as Curtec™ or other similar sprayers which are capable of obtaining coverage at low volumes may be used as low as 20 gpa of spray volume.

The following specific directions are based on general application procedures. The Recommendations of the State Extension Service should be closely followed as to timing, frequency and numbers of sprays per season. **Do not** exceed the specified use rates or apply at different intervals than specified in the use directions.

FROST INJURY PROTECTION BACTERIAL ICE NUCLEATION INHIBITOR

Application of ALONGLIFE™ made to all crops listed on this label at rates and stages of growth indicated on this label, at least 24 hours prior to anticipated frost conditions, will afford control of ice nucleating bacteria (*Pseudomonas syringae, Erwinia herbicola and Pseudomonas flourescens*) and may therefore provide some protection against light frost. Not recommended for those geographical areas where weather conditions favor severe frost.

APPLICATION DIRECTIONS

Pre-Application Dose Determination: For algae treatments, applicators should conduct initial dose determination tests simulating a full-scale treatment program to determine the minimum efficacious concentrations for eliminating the target species, unless an effective dose is already known for the given target pest population.

Maximum Annual Application Rates for Aquatic Uses in Impounded Waters, Ponds, Lakes, and Reservoirs:
Maximum annual application rate of 21.9 lbs. of metallic copper per acre-foot (8 applications per year at up to 1 ppm). This rate/frequency is calculated based on staggering the treatment of each half of the water body every 14 days (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) for eight months (244 days). In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 21.9 lbs. of metallic copper per acre-foot (8 applications per year at up to 1 ppm).

For Large Bodies of Water Separated Into Sections (Water Management Units):
Maximum annual application rate of 46.6 lbs. of metallic copper per acre-foot per year (17 applications per year at up to 1 ppm). This rate/frequency is calculated based on the maximum number of possible applications allowed based on a 14-day minimum (at a rate of 2.74 lbs. metallic copper per acre-foot = 1 ppm) retreatment interval for eight months (244 days). **Do not** apply more than 46.6 lbs. of metallic copper to a water management unit, regardless of the pest(s) targeted by applications. In situations where rapidly reproducing toxic algal species pose a public health threat to drinking or recreational water resources, applicators must receive authorization from applicable state, local or tribal water resources authorities to apply copper in excess of 46.6 lbs. of metallic copper per acre-foot per year for a single water management unit.

TO CONTROL ALGAE AND BACTERIA* IN IMPOUNDED WATERS, LAKES, PONDS, RESERVOIRS AND CANALS FOR IRRIGATION AND CHEMIGATION SYSTEMS:
Apply ALONGLIFE™ for 3 acres or less by pouring directly into ponds, small lakes or reservoirs. ALONGLIFE™ application for 3 acres or more should be applied at several points into ponds, lakes or reservoirs. Larger bodies of water can be treated through metering pump, dragging a feeder hose behind a boat across a body of water or dispensing via conventional spray equipment mounted to a boat, helicopter or airplane onto the surface. ALONGLIFE™ will quickly diffuse throughout the water body in several hours, broad distribution will speed dispersal. No more than ½ of the body of water may be treated in a single application. For small ponds or for spot treatments around shoreline, such as on private piers and docks, apply ALONGLIFE™ by directly pouring 2 fluid ounces per 125 cubic feet (¼ tsp or .0002 lbs. per 20 gallons) of water for 1 ppm of copper into the water around half of the perimeter of the body of water or at the spot to be treated. When applying from boat, use minimal speed to allow the prop wash to disperse and mix the product into the treated waters. Dispense up to 5.5 gallons or 2.74 lbs. per acre-foot of water (see use rate chart below). Apply in late spring or early summer when algae/bacteria* first appear. For best results, disperse ALONGLIFE™ evenly to warm, still water on a sunny day when algae are near the surface. Several application points speed up dispersal.

For irrigation systems via slug delivery, maximum annual application rate is 13 lbs. metallic copper (26.26 gals. of ALONGLIFE™) per year per 5 miles of conveyance. Apply copper into irrigation conveyance system or lateral at up to a maximum rate of 0.5 lbs. metallic copper (1.0 gals. of ALONGLIFE™) per cubic foot per second of water per 5 to 30-mile treatment depending on water hardness, alkalinity and algae concentration. This method may only be used in constructed irrigation conveyance systems, laterals and aqueducts.

Use rates vary, depending on algae/bacteria* species, water hardness, water temperature, and amount of algae/bacteria* present; as well as whether water is clear, turbid, flowing or static. Preferably, the water should be clear with temperatures above 60ºF (15.6º C). Higher dosages are required at lower water temperatures, higher algae/bacteria* concentrations, and for hard waters. Static water requires less chemical for algae/bacteria* control than does flowing water. Use higher dosages for chara, nitella, and filamentous algae (pond scum), and lower dosages for planktonic algae. If there is uncertainty about the dosage, begin with a lower dose and increase until control is achieved or until the maximum allowable level has been reached (see the use rate chart below).

USE RATES

Gallons of Product per acre/ft (lbs. Cu^{2+}/Acre Foot)	Equivalent Metallic Copper (ppm)
0.33 (.16 lbs.)	0.06
0.50 (.25 lbs.)	0.09
3.30 (1.63 lbs.)	0.60
5.50 gals. (2.74 lbs.)	1.00

Useful formulas for calculating water volume and flow rates:

To find the capacity of water storage containment in gallons:
Multiply the water volume in cubic feet times 7.5
Note: 1 Cubic Foot per Second of Flow = 27,000 gallons per hour
1 Acre Foot = 326,000 gallons

Calculate the Acre-Feet of water in the body of water to be treated by calculating the surface area in square feet. Then divide by 43,560 (sq. ft./acre). Then multiply by the average depth in feet.
1 Acre Foot of Water = an area of water measuring 43,560 sq. ft. x 1 foot deep
1 Acre Foot of Water = 43,560 cubic feet = 325,851.6 gallons
1 Cubic Foot of Water = 62.4 pounds
1 Acre Foot of Water = 43,560 x 62.4 = 2,720,000 pounds

TO CONTROL ALGAE OR BACTERIA* IN LIVESTOCK WATERING PONDS, TANKS AND TROUGHS AND DRIP SYSTEMS IN LIVESTOCK WATERING TANKS:

Stock watering ponds, tanks, and troughs:
For the control of algae/bacteria* in stock water ponds, tanks, and troughs, add ¼ tsp. or .0002 lbs. of ALONGLIFE™ to 30 gallons of water for a final ppm of 0.7 ppm. **Do not** exceed 1 ppm (¼ tsp. or .0002 lbs. per 20 gallons). Apply by boat or from side of pond at equal intervals or directly to tanks or troughs.

For drip-system use in livestock watering tanks:
Tanks fed by a continuous flow of spring or well water may be equipped with a chemical drip-system designed to meter-in ALONGLIFE™ based upon water flow rates. Systems should be adjusted to maintain a concentration of 0.7 ppm copper in incoming stock water (0.15 fl. oz. of product per minute to a water flow of 100 gallons per minute). Treat continuously or as needed to control and prevent algae re-growth.

TO CONTROL ALGAE OR BACTERIA* IN NON-SPRINKLER, NON-DRIP IRRIGATION CONVEYANCE SYSTEMS AND CHEMIGATION SYSTEMS, DITCHES, CANALS, AND SIMILAR OPEN IRRIGATION CONVEYANCES:
For continuous addition, add 2 fl. oz. per hour of ALONGLIFE™ for each 1,000 gallons of water per hour. For conveyance systems longer than 30 miles, dispense this rate among injection points every 30 miles. **Do not** exceed the total dosage of 1 Gallon ALONGLIFE™ in 60,000 gallons of water (1 ppm metallic copper).

When using the slug application method, the maximum annual application rate of 13 lbs. metallic copper (26.26 gals. of ALONGLIFE™) per year per 5 miles of conveyance. Apply copper into irrigation conveyance system or lateral at up to a maximum rate of 0.5 lbs. metallic copper (1.0 gals of ALONGLIFE™) per cubic foot per second of water per 5 to 30-mile treatment depending on water hardness, alkalinity and algae concentration. This application method may only be used in constructed irrigation conveyance systems, laterals and aqueducts.

TO CONTROL ALGAE OR BACTERIA* IN SPRINKLER, DRIP OR OTHER TYPES OF CLOSED IRRIGATION EQUIPMENT:
Use 1 pint of ALONGLIFE™ per 7,500 to 300,000 gallons of water. Agitation is not required. **Do not** mix with basic substances. ALONGLIFE™ must be applied continuously for the duration of the water application.

EXAMPLE CALCULATION
CHEMIGATION AND IRRIGATION FLOW RATES
(0.06 ppm Cu^{2+})

Water Flow Rate gallons per minute (gpm) per acre/ft.	Water Flow Rate cubic feet per minute (cfm)	Dosage Rate ppm Metallic Cu^{2+}	ALONGLIFE™ fl. oz./min	Feeder Pump Setting ALONGLIFE™ mL/min
3,000	400	0.06	0.4	11.8
6,000	800	0.06	0.8	23.6
9,000	1,200	0.06	1.1	32.5
12,000	1,600	0.06	1.5	44.3

CHEMIGATION AND IRRIGATION FLOW RATES
(1.0 ppm Cu^{2+})

Water Flow Rate gallons per minute (gpm) per acre/ft.	Water Flow Rate cubic feet per minute (cfm)	Dosage Rate ppm Metallic Cu^{2+}	ALONGLIFE™ fl. oz./min	Feeder Pump Setting ALONGLIFE™ mL/min
3,000	400	1.0	6.4	189.3
6,000	800	1.0	12.8	378.5
9,000	1,200	1.0	19.1	564.8
12,000	1,600	1.0	25.5	754.1

TO CONTROL ALGAE OR BACTERIA* IN BIOLOGICAL FISH PONDS AND AQUACULTURE SYSTEMS: Before treating ponds containing fish with ALONGLIFE™, measure total alkalinity (not hardness or pH). The toxicity of copper to fish increases as the total alkalinity decreases. Sensitivity to copper varies between fish species. For copper sensitive species, **do not** exceed 0.06 ppm metallic copper. When algae concentrations are high, to avoid suffocation of fish after treatment, either treat in a series of smaller doses over time or have emergency aeration available. Apply at the rate of 1/4 to 1/2 gallon of ALONGLIFE™ per acre foot (326,000 gallons) of water to yield concentrations ranging from 0.05 ppm to .09 ppm metallic copper, respectively. Metallic copper concentration is directly proportional to amount of ALONGLIFE™ added per acre foot. A maintenance dose of 4 to 8 ounces per acre foot may be used every 14 days. The rate is dependent on water temperature, fish density arid the degree of suppression targeted.

Computation for Aquacultural Ponds of Amount of ALONGLIFE™ Applied to One Acre Foot (12 Inches Deep)		
Gallons (lbs. Cu^{2+}/A) ALONGLIFE™	Gallons Water	Copper ppm
0.25 (0.123)	326,000	0.05
0.50 (0.247)	326,000	0.09
0.63 (0.31)	326,000	0.11

For use in controlling algae in catfish ponds, copper can be applied throughout the spring and summer when water temperatures are consistently above 70° F when total alkalinity and hardness concentrations fall between 100 and 300 mg/L as CaCO3. Applications are no longer needed in the fall after fish are harvested or the average water temperatures fall below 70°F. Apply mid-morning at a rate of 0.31 lbs. metallic copper per acre-foot (0.11 ppm metallic copper). Use copper only if you plan to harvest fish before fall and anticipate problems with off-flavoring algae. **Do not** make routine copper treatments for algae control in fingerling ponds or in broodfish ponds because off-flavors are not a problem in those fish. **Do not** use this treatment regimen in waters of low hardness and alkalinity (less than 50 ppm as $CaCO_3$) because copper may stress or kill fish.

TO CONTROL ALGAE IN RICE (Domestic and Wild) FIELDS: Application should be made when algae have formed on the soil surface in the flooded field. Applications are most effective when made prior to the algae's leaving the soil surface and rising to the water surface. Depending on water depth, 1 quart to 1 gallon per acre is normally sufficient. Use the lower rate at minimum water depth and the higher rate at maximum water depth. Higher use rates are acceptable, but never use more than 1 ppm metallic copper. The maximum use rate per acre should be determined by the water depth, as shown in the table below, and flow. ALONGLIFE™ can be metered into the rice field as water is being applied or slug fed into each paddy when water is being held. The maximum annual application rate must be no greater than 5.48 lbs. of metallic copper (11.07 gallons of this product) per acre-foot per year for control of algae control in water-seeded rice.

Water depth (inches)	Maximum application rate (gallons/A)	Lbs. metallic copper/Acre	ppm
2	0.9	0.45	0.17
3	1.35	0.67	0.25
4	1.8	0.89	0.33
5	2.25	1.11	0.41
6	2.7	1.34	0.5

TO CONTROL TADPOLE SHRIMP IN RICE (Domestic and Wild) FIELDS: Application should be made to the flooded fields any time the pest appears from planting time until the seedlings are well rooted and have emerged through the water. Depending on depth, 1-4 gallons per acre is normally sufficient. Use the lower rate at minimum water depth and the higher rate at maximum water depth. Higher use rates are acceptable, but never use more than 2.5 ppm metallic copper. Maximum

use rate per acre should be determined by the water depth, as shown below. The maximum annual application rate must be no greater than 13.7 lbs. of metallic copper (27.7 gallons of this product) per acre-foot per year for control of tadpole shrimp.

For simultaneous control of both tadpole shrimp and algae: The maximum annual application rate must be no greater than 13.7 lbs. of metallic copper (27.7 gallons of this product) per acre-foot per year.

Water depth (inches)	Maximum application rate (gallons/A)	Lbs. metallic copper/Acre	ppm
2	2.25	1.11	0.41
3	3.4	1.68	0.62
4	4.5	2.23	0.82
5	5.6	2.77	1.02
6	6.75	3.34	1.23

For aerial applications, ensure all aircraft mounted components used to hold or distribute and spray ALONGLIFE™ are constructed of materials outlined in the Application and Handling section of this label. Never use materials for this application which are inconsistent with this labeling. Ensure all distribution connections are tight and free of leaks. Failure to follow these instructions could result in the compromise of air frame integrity. In this case air frame failure could result, See the Spray Drift Management section of this label for further restrictions on spraying ALONGLIFE™.

EXTENSION OF SHELF LIFE OF FRUITS AND VEGETABLES BY REDUCTION OF THE BACTERIA* AND FUNGI THAT CAUSE SPOILAGE IN POST-HARVEST RAW FRUITS AND VEGETABLES:
ALONGLIFE™ is a post-harvest wash/spray to reduce spoilage and extend the shelf life of the raw agricultural commodities on this label. Apply with any type of application equipment that gives uniform and thorough coverage. Devices may include but are not limited to, dunk and dip tanks, spray applicators or fogging.

Add between 0.62 fl. oz. (1¼ tablespoons) or .002 lbs. of metallic copper and 1.86 fl. oz. (3 ¾ tablespoons) or .0071 lbs. of metallic copper of ALONGLIFE™ per 100 gallons of water to clean and control bacteria* and fungi that cause spoilage and contamination. This results in an application concentration of between 3 ppm and 9 ppm copper. Several application points speed up dispersal in large tanks. Wash fruit or vegetables in solution by immersion, spraying, soaking or other similar method. Drain solution from fruit or vegetables. Rinsing is not required. Fruits and vegetables must remain refrigerated to ensure effectiveness.

FOR CONTROL OF LISTED PLANT DISEASES IN FOOD AND NON-FOOD CROPS, TROPICAL PLANTS, ANNUAL / PERENNIAL PLANTS, POTTED FLOWERING PLANTS, SCHRUBS AND VINES, TREES AND TURFGRASS IN NURSERIES, GREENHOUSES AND FIELDS:
Refer to the tables below for: crop, disease, application rate/acre range per application and maximum allowable load per growing season per acre, minimum treatment interval and application directions.

ALONGLIFE™ contains 5% of metallic copper.
ALONGLIFE™ contains 0.495 pounds of metallic copper per gallon.
The pre-harvest interval (PHI) for ALONGLIFE™ is 0 days.

CITRUS
Grapefruit, Kumquat, Lemon, Lime, Orange, Pomelo, Tangelo and Tangerine
Maximum annual rate for citrus is 25.45 gals of product (12.6 lbs. of metallic copper).

Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Alternaria brown rot	30 to 70 (.116 to .271)	7	Apply at first indication of rain or first appearance of Brown Rot.
Greasy spot, Pink pitting[◦]	25.6 to 64 (.099 to .248)	7	Apply during mid-summer.
Scab[◦]	25.6 to 64 (.099 to .248)	7	Apply shortly before trees begin to flush. Re-apply At ⅔ petal fall. Re-apply four weeks later if necessary

Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Melanose *Diaporthe citri*) [◦], Algal spot[◦]	12.8 to 64 (.049 to .248)	7	Apply two times per year (applications must be 7 days apart) before onset of spring and autumn rains.
Citrus canker (*Xanthomonas citri*) (Suppression), *Phytophthora* brown rot[◦]	12.8 to 64 (.049 to .248)	7	Spray flushes 7 to 14 days after shoots begin to grow. Young fruit may require additional applications. Number and timing of applications will be dependent on disease pressure. Under heavy pressure, each new flush of growth should be sprayed. Heavily infected trees should be sprayed with a minimum concentration of 250 ppm with a follow up spray after 7-14 days.

[◦Not for use in California]

FIELD CROPS

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Alfalfa[◦] 2.26 gals. (1.12 lbs.)	*Cercospora* leaf spot, *Leptosphaerulina* leaf spot	19.2 to 32 (.074 to .124)	30	Apply 30 days before each harvest or earlier if disease threatens. Note: Spray injury may occur with sensitive varieties such as Lahontan.
Cereal Grains (Barley, Wheat, Oats[◦]) 2.14gals. (1.06 lbs.)	Blotch, *Helminthosporium* spot, *Septoria* leaf blotch	19.2 to 25.6 (.074 to.10)	10	Make first application at early heading and follow with a second spray 10 days later. Use the higher rates when conditions favor disease.
Corn[◦] (Field Corn, Popcorn, Sweet Corn) 8.48 gals. (4.2 lbs.)	Bacterial stalk rot	19.2 to 25.6 (.074 to .10)	7	Begin treatment when disease first appears and repeat every 7 to 10 days. Use the higher rates and shorter spray intervals when conditions favor disease.
Peanut[◦] 9.57gals. (4.74 lbs.)	*Cercospora* leaf spot, Foliar diseases of peanut	19.2 to 25.6 (.074 to .10)	7	Begin spraying at 35 to 40 days after planting or when disease symptoms first appear and repeat at 7 to 14 day intervals during humid weather. Use the higher rates when conditions favor disease.
Potato[◦] 50.50 gals. (25.0 lbs.)	Early blight (*Alternaria solani)*, Late blight *Phytophthora infestans*), Grey mold (*Botrytis cinerea*), Dry rot (*Sclerotium rolfsii*)	19.2 to 32 (.074 to .124)	5	Apply at 5 to 10 day intervals starting when plants are 2 to 6 inches high in locations where disease is light. Apply up to 32 fl. oz. per acre when disease is more severe.

Sugar Beet[◦] 15.87 gals. (7.86 lbs.)	*Alternaria* leaf spot, Bacterial leaf spot, *Cercospora* leaf spot, Fusarium, Powdery Mildew, Rhizoctonia, Rhizomania, Crown and Root rot	19.2 to 57 (.074 to .221)	10	Begin applications when conditions first favor disease development and repeat at 10 to 14 day intervals. Use higher rates when conditions favor disease. (Addition of a sticker/spreader is recommended.)

[◦Not for use in California]

SMALL FRUITS

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	**Disease**	**Rate/A fl. oz. (lbs. Cu^{2+}/A)**	**Minimum Treatment Interval (days)**	**Directions**
Blackberry (Aurora, Boysen, Cascade, Chehalem, Logan, Marion, Santiam, Thornless Evergreen) 20.20 gals. (10 lbs.)	Anthracnose, Cane spot[◦], Leaf spot, Pseudomonas blight, Purple blotch[◦], Yellow rust[◦]	32 (.124)	7	Make fall application after harvest, Apply delayed dormant spray after pruning/training in the spring. If needed, agricultural type spray oil may be added.
	Anthracnose, Cane spot[◦], Leaf spot, Purple blotch[◦], Yellow rust[◦]	19.2 (.074)	7	Apply when leaf buds begin to open and repeat when flower buds show white. If needed, agricultural- type spray oil may be added. Note: Crop injury may occur in environmental conditions such as hot or prolonged moist periods. Discontinue applications if signs of crop injury appear.
Blueberry 16.96 gals. (8.4 lbs.)	Bacterial canker	33 to 51.2 (.128 to .198)	7	Make application before fall rains and a second application 4 weeks later. Use the higher rates when conditions favor disease.
	Fruit rot[◦], Phomopsis twig blight[◦]	25.6 to 51.2 (.10 to .198)	7	Dormant Application: Begin applications when bloom buds begin to swell. Make additional applications at 7 to 14 day intervals before blooms open.
Cranberry[◦] 25.45 gals. (12.6 lbs.)	Fruit rot	51.2 (.198)	7	Make application in late bloom. Apply one or two additional applications at 7 to 14 day intervals depending on disease severity.
	Rose bloom	51.2 (.198)	7	Apply three sprays on 7 to 14 day schedule as soon as symptoms are observed.
	Bacterial stem canker, Rose blossom	51.2 (.198)	7	Apply post-harvest and again in spring at bud swell. Apply one or two additional applications at 7 to 14 day intervals depending on disease severity.
	Leaf blight, Red leaf spot, Stem blight, Tip blight (*Monilinia*)	51.2 (.198)	7	Apply delayed dormant spray the spring. Repeat at 7 to 14 day intervals through pre-bloom.

Currant[◦], Gooseberry[◦] (Ribes) 32.32 gals. (16 lbs.)	Anthracnose, Leaf spot	64 (.248)	10	Make initial application after first leaves have expanded. Continue on a 10 to 14 day schedule during wet conditions in the spring. Make an additional application after harvest.
Raspberry	Anthracnose, Cane spot, Leaf spot, Pseudomonas blight, Purple blotch[◦], Yellow rust[◦]	32 (.124)	7	Make fall application after harvest. Apply delayed dormant spray after training in the spring. If needed, agricultural-type spray oil may be added.
20.20 gals. (10 lbs.)	Anthracnose, Cane spot, Leaf spot, Purple blotch[◦], Yellow rust[◦]	19.2 (.074)	7	Apply when leaf buds begin to open and repeat when flower buds show white. If needed, agricultural-type spray oil may be added. Note: Crop injury may occur if applied to foliage under certain environmental conditions such as hot or prolonged moist periods. Discontinue applications if signs of crop injury appear.
Strawberry 12.12 (6 lbs.)	Angular leaf spot (*Xanthomonas*), Downy mildew, Leaf blight[◦], Leaf scorch[◦], Leaf spot	19.2 to 25.6 (.074 to .10)	7	Begin application when plants are established and continue on a weekly schedule throughout the season. Minimum retreatment interval is seven days. Apply in at least 20 gallons of water. Use the higher rates when conditions favor disease. Note: Discontinue applications if signs of crop injury appear.

[◦Not for use in California]

TREE CROPS

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Almond, Apricot, Cherry, Plum, Prune	Bacterial Blast (*Pseudomonas*), Bacterial canker, Xanthomonas, Blossomcherry brown rot, Coryneum blight (Shot Hole)	51.2 to 64 (.198 to .248) on Almond, all others 60 to 90 (.232 to .348)	7	Make first application before fall rains and a second at late dormant. Use higher rates when conditions favor disease. If needed, agricultural-type spray oil may be added. For Cherries: Where disease is severe, an additional application shortly after harvest may be required. Note: Foliar injury may occur from post-bloom sprays on almonds, especially on Ne Plus varieties.
	Blossom brown rot[◦], Coryneum blight (Shot Hole)	51.2 to 64 (.198 to .248) on Almond, all others 60 to 90 (.232 to .348)	5	Apply during early bloom. **Do not** apply after full bloom or injury may occur. Use the higher rates when rainfall is heavy and disease pressure is high.
	Black knot (Plum)[◦]	32 to 64 (.124 to .248)	5	Make application at bud swell up to early bloom for early disease suppression. Apply before full bloom. Use higher rates when rainfall is heavy and disease pressure is high. Note: To avoid plant injury, **do not** use after full bloom.
36.36 gals. (18 lbs.)	Cherry leaf spot (Sour Cherries only)[◦]	38.4 to 64 (.149 to .248)	7	Apply at petal fall as well as 1 to 2 times after petal fall. Use the lower rates where disease infection is light and use the higher rates for a dormant application or where disease infection is moderate to heavy. **Do not** apply to sweet cherry or the English Morello variety as severe injury will result. Note: Moderate to severe injury such as leaf spotting and defoliation may occur from post bloom applications.
Apple	Anthracnose, Blossom blight, European canker (*Nectria*)◦, Shoot blast (*Pseudomonas*)[◦]	51.2 to 64 (.198 to .248)	N/A only one application permitted per season.	Apply before fall rains. Use the higher rates when conditions favor disease. Note: Use on yellow varieties may cause discoloration. To avoid discoloration, pick before spraying.

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
32.32 gals. (16 lbs.)	Apple scab, Fire blight, Phytophthora root rot, Verticillium wilt	51.2 to 64 (.198 to .248)	N/A only one application permitted per season.	Make one application between silver-tip and green-tip. Apply as a full cover spray for early season disease suppression. Note: Moderate to severe crop injury may occur from late application; discontinue use when green-tip reaches 1/2 inch.
	Apple scab	19.2 to 25.6 (.074 to .10)	5	Extended spray schedule where fruit finish is not a concern. Continued applications may be made at 5 to 7 day intervals between ½ inch green-tip and first cover spray. Note: Moderate to severe crop injury may result from this extended spray schedule. It is not intended for fresh market apples or for apples where fruit finish is a concern as it is likely to cause fruit russeting.
	Fire blight	19.2 to 25.6 (.074 to .10)	5	
	Collar rot[◦], Crown rot[◦]	32 (.124)	N/A only one application permitted per season.	Apply as a drench on the lower trunk area of each tree. Apply in early spring or in fall after harvest for best results. **Do not** apply to foliage or fruit. Only one application per year.
Avocado 38.18 gals. (18.9 lbs.)	Anthracnose or Black spot, *Cercospora* blotch or Spot[◦], Scab[◦]	51.2 to 64 (.198 to .248)	14	Apply when bloom buds begin to swell and continue application at bi-monthly intervals for five to six applications. Use the higher rates when conditions favor disease.
Banana[◦]	Sigatoka (Black and Yellow)	19.2 (.074)	7	Apply by air in 3 gallons of water. If needed, agricultural-type spray oil may be added. Apply on a 7 to 14 day schedule throughout the wet season. Apply at 21 day intervals during dry periods.
38.17 gals. (18.9 lbs.)	Black pitting	32 (.124)	7	Mix product in 100 gallons of water. Apply by spray to the fruit stem and the basal portion of the leaf crown. Apply during the first and second weeks after fruit emergence.
Cacao[◦] 31.81 gals. (15.75 lbs.)	Black pod	19.2 to 64 (.074 to .248)	14	Begin applications at the start of the rainy season and continue while infection conditions persist.

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Chestnut 16.96 gals. (8.4 lbs.)	Chestnut blight, Leaf spot (*Mycosphaerella maculiformis*), Phytophthora root rot, Powdery mildew (*Sphaerotheca fuliginea*)	28 (.108)	14	Apply first spray after flowering and before onset of long rains and then at 14 to 28 day intervals until picking.
Coffee[◦]	Coffee berry disease (*Collectotrichum coffeanum*)	38.4 to 64 (.149 to .248)	14	Apply first spray after flowering and before onset of long rains and then at 14 to 28 day intervals until picking. Use the higher rates when conditions favor disease.
	Bacterial blight (*Pseudomonas syringae*)	38.4 to 64 (.149 to .248)	14	Begin spray program before the onset of long rainy periods and continue throughout the rainy season at 14 to 21 day intervals. The critical time for spraying to control disease is just before, during and after flowering(s), especially when coinciding with wet weather. Use the higher rates when rainfall is heavy and disease pressure is high.
	Leaf rust (*Hemileia vastatrix*)	19.2 to 32 (.074 to .124)	14	Apply before the onset of rain and then at 14 to 21 day intervals while the rains continue. Use the higher rates when rainfall is heavy and disease pressure is high.
25.45 gals. (12.6 lbs.)	Iron Spot (*Cercospora coffeicola*), Pink Disease (*Corticium almonicolor*)	19.2 (.074)	14	Use concentrate or dilute spray. Begin treatment at the start of wet season and continue at monthly intervals for three applications.
Filbert[◦] (OR and WA only)	Bacterial blight	64 to 155 (.248 to .60)	14	Apply as a post-harvest spray. In seasons of heavy rainfall, apply a second spray when three-fourths of the leaves have dropped. Use the higher rates when rainfall is heavy and disease pressure is high. If needed, agricultural type spray oil may be added.
36.36 gals. (18 lbs.)	Eastern filbert blight	64 to 155 (.248 to .60)	14	Apply as a dilute spray in adequate water for thorough coverage. Make applications starting at bud swell to bud break and continue at 14 day intervals or as needed until early May. Thorough coverage is essential. Use the higher specified rates when rainfall is heavy and disease pressure is high. If needed, agricultural type spray oil may be added.

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Mango[◦] 96.96 gals. (48 lbs.)	Anthracnose, Bacterial spot (Xanthomonas campestris), Black banded disease (Rhinocladium corticolum), Mango bacterial canker Disease (Xanthomonas campestris), Phoma blight (Phoma glomerata), Powdery mildew, Red rust of Mango (Cephaleuros spp), Scab (Elsino mangiferae)	38.4 to 64 (.149 to .248)	7	Apply bi-monthly after fruit set until harvest. Use higher rates when rainfall is heavy and disease pressure is high.
Olive 36.36 gals. (18 lbs.)	*Cercospora* leaf spot, Olive knot, Peacock spot, *Phytopthora* crown and root rot	52 to 86 (.201 to .333)	30	Make first application before winter rains begin. A second application in early spring should be made if disease is severe. Apply the higher rates for heavy disease pressure or when conditions favor disease development.
Papaya 42.82 gals. (21.2 lbs.)	Anthracnose, Powdery mildew, Phytophthora blight, Corynespora leaf spot	26 to 52 (.101 to .201)	7	Apply before disease appears. Repeat at 10 to 14 day intervals under light disease pressure. Shorten spray intervals to 7 days under heavy disease pressure. Addition of a spreader is desirable. Use the higher specified rates when disease is severe.
Persimmon 11.11 gals. (5.5 lbs.)	Anthracnose, Armillaria root rot (*Armillaria mellea*), Canker, Gray mold (*Botrytis cinerea*), Leaf spots and Blights, Root and crown rot (Phytophthora spp.), Verticillium wilt	16 (.062)	14	Apply every 14 days after beginning of fruit set until harvest.
Peach, Nectarine 36.36 gals. (18 lbs.)	Anthracnose, Bacterial leaf spot, Black spot, Blossom brown rot, Fire blight, Peach leaf curl[◦], Powdery mildew, Rust	51.2 to 103 (.198 to .399)	7	Post bloom application applied at first and second cover sprays. Note: **Do not** spray 3 weeks prior to harvest. Use only labeled rates. Spotting of leaves and defoliation may occur from use in cover sprays.
Pear	Blossom blight(Pseudomonas)	19.2 (.074)	7	Apply before Fall rains and again during dormancy before Spring growth starts.

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
12.12 gals. (6 lbs.)	Fire blight	19.2 (.074)	5	Apply at 5 day intervals throughout the bloom period. Note: Russeting may occur in copper sensitive varieties. Excessive dosages may cause fruit russet on any variety.
Pecan[◦]	Kernel rot, Shuck rot (*Phytophthora cactorum*), Zonate leaf spot (*Cristulariella pyamidalis*)	19.2 to 32 (.074 to .124)	14	For suppression, apply in sufficient water to ensure complete spray coverage at 2 to 4 week intervals starting at kernel growth and continue until shucks open. Use the higher rates and shorter spray intervals if frequent rainfall occurs.
12.72 gals. (6.3 lbs.)	Ball moss, Spanish moss	38.4 to 64 (.149 to .248)	14	Apply in 100 gallons of water in the spring when ball moss is actively growing, using 1½ gallons of spray per foot of tree height. Make sure to wet ball moss tufts thoroughly. The addition of a non-ionic surfactant will improve control. A second application will be required after 12 months.
Pistachio 16.96 gals. (8.4 lbs.)	Botryosphaeria Panicle and Shoot blight[◦], Botrytis blight[◦], Late blight (*Alternaria alternata*), Septoria leaf blight	32 to 64 (.124 to .248)	14	Make initial application at bud swell and repeat on a 14 to 28 day schedule. If disease conditions are severe, use the higher rates and shorter spray intervals.
Quince[◦] 32.32 gals. (16 lbs.)	Fire blight	19.2 (.074)	5	Apply at 5 day intervals throughout the bloom period. Apply in adequate water for thorough coverage.
Walnut 64.64 gals. (32 lbs.)	Walnut blight	38.4 to 64 (.149 to .248)	7	Apply at first spray at early pre-bloom prior to or when catkins are partially expanded. Make additional applications during bloom and early nutlet stage or as needed when frequent rainfall or extended periods of moisture occur. Thorough coverage of catkins, leaves and nutlets is essential for effective control. Note: Adequate control may not be obtained when copper tolerant species of *Xanthomonas* bacteria are present.

[◦Not for use in California]

VEGETABLES
(Non-Leafy and Leafy)

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Artichoke (Globe) 5.35 gals. (2.65 lbs.)	Botrytis blight, Powdery mildew	8.48 (.033)	7	For protective sprays, make first application when plants are 6 inches high; repeat on a 7 to 10 day schedule depending on environmental conditions.
Asparagus 10.10 gals. (5.0 lbs.)	Anthracnose, *Cercospora* blight, Fusarium stem and crown rot, Fusarium wilt and Root rot, Rust (P*uccinia asparagi*), Grey mold, Leaf spot, Shoot blight	16 (.062)	10	Begin applications when conditions first favor disease development and repeat at 10 to 14 day intervals.
Bean[◦] (Dry, Green) 9.57 gals. (4.74 lbs.)	Brown spot, Common blight, Halo blight	19.2 to 25.6 (.074 to .10)	7	For protective sprays, make first application when plants are 6 inches high; repeat on a 7 to 10 day schedule depending on environmental conditions. Use the higher rates for more severe disease.
Beet[◦] (Table Beet, Beet Greens) 15.87 gals. (7.86 lbs.)	*Cercospora* leaf spot, Downey mildew, Leaf blight	19.2 to 32 (.074 to .124)	10	Begin applications when conditions first favor disease development and repeat at 10 to 14 day intervals. Use the higher rates when conditions favor disease.
Carrot 10.10 gals. (5 lbs.)	*Alternaria* leaf spot, *Cercospora* leaf spot	19.2 (.074)	7	Begin applications when disease first threatens and repeat at 7 to 14 day intervals depending on disease severity.
Celery, Celeriac 10.70 gals. (5.3 lbs.)	Bacterial blight, *Cercospora* early blight, Septoria late blight	19.2 (.074)	7	Begin applications as soon as plants are first established in the field, repeating at 7 day intervals depending on disease severity and environmental conditions.
Crucifers (Broccoli, Brussel Sprout, Cabbage, Cauliflower, Collard Greens, Mustard Greens, Turnip Greens) 5.35 gals. (2.65 lbs.)	Black leaf spot (*Alternaria*) Black rot (*Xanthomonas*) *Cercospora* leaf spot, Downy mildew	19.2 to 25.6 (.074 to .10)	7	Begin application after transplants are set in the field or shortly after emergence of field seeded crops or when conditions favor disease development. Use the higher rates when conditions favor disease. Note: Reddening of older leaves may occur on Broccoli and a flecking of wrapper leaves may occur on cabbage.

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Cucurbits (Cantaloupe, Cucumber, Honeydew, Muskmelon, Pumpkin, Squash, Bitter Gourd, Melon Gourd (Summer and Winter), Watermelon 10.61 gals. (5.25 lbs.)	*Alternaria* leaf spot, Angular leaf spot, Anthracnose, Downey mildew, Gummy stem blight[◦], Phomopsis, Powdery mildew, Watermelon bacterial fruit blotch (Suppression)	19.2 to 25.6 (.074 to .10)	5	Begin applications prior to disease development and continue while conditions are favorable for disease development. Repeat at 5 to 7 day intervals. Use the higher rates when conditions favor disease. Note: crop injury may occur from application at higher rates and shorter intervals. Discontinue use if injury occurs.
Eggplant 15.95 gals. (7.9 lbs.)	*Alternaria* Blight, Anthracnose, Phomopsis[◦], Phytophthora blight	19.2 (.074)	7	Begin applications prior to development of disease symptoms. Repeat sprays at 7 to 10 day intervals depending on disease severity.
Leek 12.12 gals. (6.0 lbs.)	Leek rust, Mildew (*Peronospora destructor*), White tip (*Phytophthora porri*)	16 (.062)	7	Begin applications prior to development of disease symptoms. Repeat sprays at 7 to 10 day intervals depending on disease severity.
Lettuce (Endive, Escarole) 16.16 gals. (8.0 lbs.)	Anthracnose, *Alternaria*, Bacterial leaf spot, *Cercospora* and *Septoria* leaf spot, Damping off head rot and soft rot, Downy mildew (*Bremia lactucae*), Gray mold, Rust, Powdery mildew, Ring spot, Southern blight, Wilt	16 (.062)	5	Begin treatment when disease first threatens and repeat every 5 to 10 days depending on disease severity.
Okra[◦] 10.61 gals. (5.25 lbs.)	Anthracnose, Bacterial leaf spot, *Cercospora* leaf spot, *Fusarium* wilt, Leaf spots, Pod spot, Powdery mildew	19.2 to 32 (.074 to .124)	5	Begin treatment when disease first threatens and repeat every 5 to 10 days depending on disease severity. Use the higher rates and shorter spray intervals when conditions favor disease.
Onion, Garlic 12.12 gals. (6 lbs.)	Bacterial blight, Downy Mildew, Purple blotch[◦]	19.2 (.074)	7	Begin when plants are 4 to 6 inches high and repeat at weekly intervals. Minimum retreatment interval is seven days. Use the higher rates when conditions favor disease.
Pea 7.97 gals. (3.95 lbs.)	Powdery mildew, Downey mildew, Leaf spot	19.2 to 25.6 (.074 to .10)	7	Begin application when disease symptoms first appear and repeat at weekly intervals. Minimum retreatment interval is seven days. Use the higher rates when conditions favor disease.

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Pepper (Bell, Chili) 23.93 gals. (11.85 lbs.)	Anthracnose[◦], Bacterial spot, Cercospora leaf spot	15.6 to 30 (.060 to .116)	3	Begin application when conditions favor disease development and repeat at 3 to 10 day intervals depending on disease severity. Use the higher rates when conditions favor disease.
Rhubarb 7.97 gals. (3.95 lbs.)	Crown rot, Downy mildew (*Peronospora jaapiana*), Leaf spot, Rust	12.6 (.049)	7	Begin application when disease symptoms first appear and repeat at weekly intervals. Minimum retreatment interval is seven days.
Rutabaga 15.87 gals. (7.86 lbs.)	*Alternaria* blight, Anthracnose, Club root, Downey mildew, Powdery mildew, Root knot, White rust, White rot	20.9 (.081)	10	Begin applications when conditions first favor disease development and repeat at 10 to 14 day intervals.
Soybean 9.57 gals. (4.74 lbs.)	Brown spot, Downy mildew *Cercospora* leaf spot, Frogeye leaf spot, *Phytopthora* stem and Root rot, Pod and Stem blight, Stem rot	12.6 (.049)	7	For protective sprays, make first application when plants are 6 inches high; repeat on a 7 to 10 day schedule depending on environmental conditions.
Spinach 7.97 gals. (3.95 lbs.)	Anthracnose, Blue mold[◦], *Cercospora* leaf spot, White rust, Downey mildew	19.2 to 25.6 (.074 to .10)	7	Begin application when disease first appears or when conditions favor disease development. Repeat at 7 to 10 day intervals. Use the higher rates when conditions favor disease Note: Flecking may occur in spinach leaves.
Tomato (for Fresh Market 16.16 gals. (8 lbs.)	Anthracnose, Bacterial spot, Bacterial speck, Early blight, Gray leaf mold, Late blight, Septoria leaf spot	25.6 (.10)	3	Begin applications when disease first appears and repeat at 3 to 10 day intervals depending on disease severity.
Tomato (for Processing) 35.14 gals. (17.4 lbs.)	Anthracnose, Bacterial spot, Bacterial speck, Early blight, Gray leaf mold, Late blight, Septoria leaf spot	19.2 to 32 (.074 to .124)	3	Begin applications when disease and repeat at 3 to 10 day intervals depending on disease severity. Use the higher rates when conditions favor disease.
Watercress[◦]	*Cercospora* leaf spot	19.2 (.074)	7	Production fields must be drained of water at least 24 hours prior to each application and water must not be reapplied to the field for a minimum of 24 hours following each application. Copper must not to be applied to watercress during the aquatic production phase. Begin application when plants are first established in the field, repeating at 7 to 14 day intervals depending on disease severity. **Do not** exceed four

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
4.28 gals. (2.12 lbs.)				applications per year. Apply using ground spray equipment at no less than 50 gallons of spray solution per acre.

[◦Not for use in California]

VINES

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Grape 40.40 gals. (20 lbs.)	Black rot[◦], Downy mildew, Phomopsis, Powdery mildew	19.2 to 32 (.074 to .124)	3	Begin applications at bud break with subsequent applications throughout the season depending on disease severity. Use the higher rates when conditions favor disease. Note: Foliage injury may occur on copper sensitive varieties such as Concord, Delaware, Niagara and Rosette.
Hops[◦] 5.35 gals. (2.65 lbs.)	Downy mildew, Powdery mildew (*Podosphaera macularis*)	19.2 (.074)	10	Make crown treatments after pruning, but before training. Additional treatments are needed on 10 day intervals. Note: Discontinue use two weeks before harvest.
Kiwi[◦] 12.72 gals. (6.3 lbs.)	Bacterial Diseases *(Erwinia herbicola, Pseudomonas flourescens, Pseudomonas syringae)*	38.3 (.148)	30	Apply with 200 gallons of water per acre. Make applications in a monthly basis. A maximum of three applications may be made per 12 month period.
Passion Fruit 19.06 gals. (9.44 lbs.)	Anthracnose, Root, Crown and collar rot, Fusarium wilt	37.8 (.146)	7	Begin application when plants are established in the field. Repeat every 7 to 10 days depending on disease conditions.

[◦Not for use in California]

MISCELLANEOUS

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Atemoya[◦], Sugar Apple (Annona)[◦]	Anthracnose	25.6 to 38.4 (.10 to .149)	7	Make initial application just before flowering and repeat on a weekly schedule until just before harvest.

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
25.45 gals. (12.6 lbs.)				Minimum retreatment interval is seven days. Apply in sufficient water for thorough coverage. Use the higher rates for severe disease.
Carambola[◦] (Star Fruit)[◦] 21.21 gals. (10.5 lbs.)	Anthracnose	38.4 to 64 (.149 to .248)	7	Make initial application before flowering and repeat on a weekly schedule until just before harvest. Minimum retreatment interval is seven days. Apply in sufficient water for thorough coverage. Use the higher rates for severe disease.
Chives 5.35 gals. (2.65 lbs.)	Downy mildew	19.2 (.074)	7	Begin application when plants are established in the field. Repeat every 7 to 10 days depending on disease conditions.
Coriander (Cilantro) 5.35 gals. (2.65 lbs.)	Bacterial leaf spot, Powdery mildew	8.48 (.033)	10	Begin applications when conditions first favor disease development and repeat at 10 to 14 day intervals
Dill 7.97 gals. (3.95 lbs.)	*Phoma* Leaf spot, *Rhizoctonia* foliage blight[◦]	19.2 to 25.6 (.074 to .10)	7	Begin application when plants are first established in the field and repeat at 7 to 10 day intervals depending on disease severity and environmental conditions. Use the higher rates for severe disease.
Ginseng 10.61 gals. (5.25 lbs.)	*Alternaria* leaf blight, Damping off, Fusarium wilt, Phytothora blight, Stem blight	16.8 (.065)	7	Begin application when plants are first established in the field and repeat at 7 to 10 day intervals depending on disease severity and environmental conditions.
Guava[◦] 9.93 gals (4.92 lbs.)	Anthracnose, Red algae	25.6 to 38.4 (.10 to .149)	7	Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Minimum retreatment interval is seven days. Apply in sufficient water for thorough coverage. Use the higher rates for severe disease.
Litchi[◦] 9.93 gals. (4.92 lbs.)	Anthracnose	25.6 to 38.4 (.10 to .149)	7	Make initial application just before flowering and repeat on a weekly schedule until just before harvest. Minimum retreatment interval is seven days. Use the higher rates for severe disease.
Macadamia[◦]	Anthracnose	38.4 to 64 (.149 to .248)	7	Initiate sprays at first sign of flowering and repeat on a weekly schedule until just before harvest. Minimum

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
				retreatment interval is seven days. Apply in sufficient water for thorough coverage. Use the higher rates for severe disease.
19.06 gals. (9.44 lbs.)	Phytophthora blight (*P. capsici*), Raceme blight (*Botrytis cinerea*)	38.4 to 64 (.149 to .248)	7	Apply during Raceme development and bloom periods. Apply in sufficient water for thorough coverage. Use the higher rates when conditions favor disease.
Mamey Sapote[◦] 16.96 gals. (8.4 lbs.)	Algal leaf spot, Anthracnose	38.4 to 64 (.149 to .248)	14	Apply when conditions favor disease development. Repeat on a 14 to 30 day schedule as disease severity and environmental conditions dictate. Use the higher rates when conditions favor disease.
Mint 5.35 gals. (2.65 lbs.)	*Alternaria* leaf spot, Anthracnose, Fusarium wilt, Powdery mildew, Rust, Verticillium wilt	8.48 (.033)	10	Begin applications when conditions first favor disease development and repeat at 10 to 14 day intervals.
Papaya[◦] 42.82 gals. (21.2 lbs.)	Anthracnose	26 to 52 (.101 to .201)	7	Apply before disease appears. Repeat at 10 to 14 day intervals under light disease pressure. Shorten spray intervals to 7 days under heavy disease pressure. Addition of a spreader is desirable. Use the higher specified rates when disease is severe.
Parsley 4.04 gals. (2 lbs.)	*Alternaria* and bacterial leaf spot, Bacterial blight[◦] *Pseudomonas sp.,* Crown and root rot, Downey mildew, Powdery mildew, Fusarium root rot, Gray mold, Leaf spot, Septoria leaf spot	16 (.062)	10	Begin applications when conditions first favor disease development and repeat at 10 to 14 day intervals.
Rosemary 5.35 gals. (2.65 lbs.)	Botrytis blight, Powdery mildew, Root rot	8.48 (.033)	10	Begin applications when conditions first favor disease development and repeat at 10 to 14 day intervals

Crop and Maximum Annual Rate of Product in Gallons per Acre (lbs. Metallic Copper)	Disease	Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Treatment Interval (days)	Directions
Tobacco 8.08 gals. (4 lbs.)	Angular leaf spot, Brown spot/Red rust (*Alternaria longipes*), Gray mold (*Botrytis cinerea*), Downy mildew (*Peronospora tobacina*), Powdery mildew, Frog eye (*Cercospora nicitianae*), *Fusarium* wilt, Leaf spot (*Ascochyta nicitianae*) Southern blight, Verticillium wilt, Wildfire	32 (.124)	10	Make initial application just before flowering and repeat 10 to 14 day intervals until just before harvest. Apply in sufficient water for thorough coverage.

[◦Not for use in California]

ORNAMENTALS

Spray foliage thoroughly for good coverage. Re-application rates and intervals can vary according to disease severity and adversity of environmental conditions. Lower rates may be as effective as higher rates and should be tried first. Routine preventive programs may be maintained using lower rates.

Use of low volume equipment is effective against Botrytis but may not be effective against established Powdery mildew and/or Xanthomonas infections.

Applications on actively growing tissues may be more effective than applications on dormant tissues.

USE PRECAUTION

•Rates above 15 fluid ounces (.058 lbs. metallic copper) of this product per 100 gallons of water may damage some tender, open blooms.

USE RESTRICTIONS

•**On Easter Lilies**, **do not** apply more than 2.5 pounds of copper [646.4 fl. oz. (5.05 gals.) of this product] per acre per application.
Do not apply more than 75 pounds of copper [151.51 gals. of this product) per acre per year. Minimum retreatment interval is 7 days.
Do not apply any additional pesticide containing copper to this land for 36 months.

•**On All Other Ornamentals**, **do not** apply more than 2 pounds of copper [512 fl. oz. (4.00 gals.) of this product] per acre per application.
Do not apply more than 20 pounds of copper [40.4 gals. of this product) per acre per year. Minimum retreatment interval is 7 days.

ANNUAL AND PERENNIAL BEDDING PLANTS

Plant	Disease(s) / Pathogens	ALONGLIFE™ fl. oz./100 gals. (lbs. Cu^{2+}/100 gals)
Alyssum	Botrytis, Downy mildew	13 to 20 (.050 to .078)
Agryanthemum[◦]	Botrytis, Erwina	13 to 20 (.050 to .078)
Begonia	Botrytis	13 to 20 (.050 to .078)
	Powdery mildew, Xanthomonas	15 to 30 (.058 to .116)
Chrysanthemum	Botrytis, Pseudomonas	15 to 25 (.058 to .097)
Daylily	Botrytis	13 to 20 (.050 to .078)
	Erwina, Powdery mildew	15 to 25 (.058 to .097)
Dusty Miller	Alternaria	15 to 25(.058 to .097)
	Botrytis	13 to 20 (.050 to .078)
Fuchsia	Botrytis	13 to 20 (.050 to .078)
	Powdery mildew	13 to 25 (.050 to .097)
Geranium	Botrytis, Rust (Preventative)	15 to 20 (.058 to .078)
	Preventative: Pseudomonas, Xanthomonas	15 to 45 (.058 to .174)
	Theraputic: Pseudomonas, Xanthomonas	50 (.194)
	Theraputic: Rust	25 to 40 (.097 to .155)
Hollyhock[◦]	Botrytis	13 to 20 (.050 to .078)
	Powdery mildew, Rust	15 to 25 (.058 to .097)
Hosta[◦]	Botrytis	15 to 20 (.058 to .078)
	Erwina	15 to 30 (.058 to .116)
Impatiens	Alternaria	15 to 35 (.058 to .136)
	Botrytis	13 to 15 (.050 to .058)
	Phytophthora	15 to 20 (.058 to .078)
	Powdery mildew	13 to 25 (.050 to .097)
	Pseudomonas	15 to 35 (.058 to .136)
Lisianthus	Botrytis	13 to 20 (.050 to .078)
	Erwina[◦], Pseudomonas[◦], Xanthomonas[◦]	13 to 25 (.050 to .097)
New Guinea Impatiens	Botrytis	13 to 15 (.050 to .058)
	Powdery mildew	13 to 20 (.050 to .078)
Pachysandra[◦]	Botrytis	13 to 15 (.050 to .058)
	Volutella	13 to 25 (.050 to .097)
Pansy	Botrytis	13 to 20 (.050 to .078)
	Cercospora, Phytophthora	15 to 20 (.058 to .078)
Periwinkle	Botrytis	13 to 20 (.050 to .078)
	Phytophthora	15 to 20 (.058 to .078)
Ranunculus	Bacterial blight, Botrytis	13 to 20 (.050 to .078)
	Powdery mildew	15 to 25 (.058 to .097)
Snapdragon	Botrytis	13 to 20 (.050 to .078)
	Downy mildew, Rust	13 to 25 (.050 to .097)
Zinnia	Botrytis	13 to 20 (.050 to .078)
	Powdery mildew	15 to 30 (.058 to .116)
	Pseudomonas, Xanthomonas	13 to 25 (.050 to .097)
Additional annuals and perennials [1] [,◦]	Botrytis	13 to 20 (.050 to .078)
	Downy mildew	15 to 30 (.058 to .116)
	Powdery mildew, Pseudomonas	15 to 25 (.058 to .097)

[1] Additional annuals and perennials include Anenome, Aster, Bacopa, Baptista, Carnation, Coleus, Columbine, Coneflower, Coreopsis, Cuphea, Dahlia, Daisy, Dianthus, Delphinium, Echinacea, Ipomoea, Lantana, Lead Plant, Liatris, Lobelia, Lupine, Marigold, Monarda, Ornamental Grasses, Pentas, Petunia, Phlox, Poppy, Prairie Smoke, Primrose, Pulmonaria, Rudbeckia, Salvia, Scabiosa, Sedum, Silphium, Verbena, Veronica, Vinca, Viola.

[◦Not for use in California]

CUT FLOWERS

Plant	Disease	ALONGLIFE™ fl. oz./100 gals. (lbs. Cu^{2+}/100 gals)
Alstromeria[◦]	Botrytis	13 to 15 (.050 to .058)
Carnation[◦]	Botrytis	13 to 20 (.050 to .078)
Chrysanthemum[◦]	Botrytis	15 to 25 (.058 to .097)
Delphinium[◦]	Botrytis	13 to 15 (.050 to .058)
Freesia[◦]	Botrytis	13 to 15 (.050 to .058)
Gerbera	Botrytis	15 to 25 (.058 to .097)
Gladiola	Botrytis	13 to 15 (.050 to .058)
Lisianthus	Botrytis	13 to 20 (.050 to .078)
Orchid	Botrytis	13 to 15 (.050 to .058)
Rose[◦]▪	Botrytis	15 to 50 (.050 to .194)
Snapdragon[◦]	Botrytis	13 to 20 (.050 to .078)
Sweetpea[◦]	Botrytis	13 to 15 (.050 to .058)

[◦Not for use in California]
[◦]▪ On Roses, rates up to 70 fluid ounces (.252 lbs. metallic copper) of this product per 100 gallons of water may be used against Powdery mildew if no blooms are open.

NURSERY PLANTS

Plant	Disease(s) / Pathogens	ALONGLIFE™ fl. oz./100 gals. (lbs. Cu^{2+}/100 gals)
Azalea	Anthracnose	15 to 25 (.058 to .097)
	Botrytis	13 to 25 (.050 to .097)
	Cylindrocladium	15 to 35 (.058 to .136)
	Phytophthora	20 to 25 (.078 to .097)
Buxus	Volutelia	15 to 25 (.058 to .097)
Cherry Laurel[◦]	Xanthomonas	20 to 35 (.078 to .136)
Conifers[◦]	Botrytis	13 to 25 (.050 to .097)
	Diplodia	10 to 13 (.038 to .050)
Crape Myrtle[◦]	Botrytis	13 to 25 (.050 to .097)
	Powdery mildew	20 to 30 (.078 to .116)
Dogwood	Anthracnose, Powdery mildew	20 to 30 (.078 to .116)
	Botrytis	13 to 25 (.050 to .097)
Elm[◦]	Erwina	20 to 40 (.078 to .155)
Euonymus	Anthracnose	15 to 30 (.058 to .116)
	Botrytis	13 to 25 (.050 to .097)
Hawthorn	Cedar apple rust	15 to 25 (.058 to .097)
Hydrangea	Botrytis, Powdery mildew	13 to 25 (.050 to .097)
	Cercospora	15 to 25 (.058 to .097)
Indian Hawthorn	Botrytis	13 to 25 (.050 to .097)
	Cercospora	15 to 25 (.058 to .097)
	Entomosporium	15 to 30 (.058 to .116)
Japanese Maple	Botrytis	13 to 25 (.050 to .097)
	Pseudomonas, Venticillium	15 to 25 (.058 to .097)
Juniper	Phomopsis	13 to 25 (.050 to .097)
Leland Cypress	Cercospora	13 to 25 (.050 to .097)
Lilac	Botrytis, Pseudomonas	13 to 25 (.050 to .097)
	Powdery mildew	15 to 25 (.058 to .097)
Nandina[◦]	Xanthomonas	15 to 25 (.058 to .097)
Oak[◦]	Anthracnose	35 (.136)
	Botrytis	13 to 25 (.050 to .097)
Oak (Trunk spray) [◦]	Phytophthora	30 to 45 (.058 to .174)

Photinia[◦]	Entomosporium	15 to 30 (.058 to .116)
Rhododendron	Botrytis	13 to 25 (.050 to .097)
	Cylindrocladium	15 to 35 (.058 to .136)
	Phytophthora	20 to 35 (.078 to .136)
Rosaceae:	Apple scab	40 (.155)
Cotoneaster (Malus), Mountain Ash, Ornamental Crabapple, Ornamental Pear, Pyracantha	Botrytis	13 to 25 (.050 to .097)
	Fireblight	20 to 40 (.078 to .155)
	Cylindrocladium	15 to 35 (.058 to .136)
	Phytophthora	15 to 30 (.058 to .116)
Rose[◦]▪	Preventative: Black spot, Powdery mildew	15 to 30 (.058 to .116)
	Therapeutic: Black spot, Powdery mildew	35 to 50 (.136 to .194)
	Preventative: Botrytis, Cylindrocladium[◦], Downy mildew	15 to 20 (.058 to .078)
	Therapeutic: Botrytis, Cylindrocladium[◦], Downy mildew	25 to 50 (.097 to .194)
Ruscus[◦]	Pseudomonas	13 to 25 (.050 to .097)
Sycamore[◦]	Abthracnose	35 (.136)
	Botrytis	13 to 25 (.050 to .097)
Viburnum[◦]	Botrytis	13 to 25 (.050 to .097)
	Cercospora	15 to 25 (.058 to .097)
	Phytophthora	20 to 25 (.078 to .097)
Additional nursery plants [1]	Botrytis, Rhizoctonia	13 to 25 (.050 to .097)
	Fireblight	20 to 40 (.078 to .155)
	Dothistroma[◦]	20 to 40 (.078 to .155)
	Powdery mildew	20 to 25 (.078 to .097)
	Pseudomonas	15 to 25 (.058 to .097)

[1] Additional Nursery Plants include: **Shrubs/Vines**[◦] - Barberry, Bougainvillea, Clematis, Cornus, Cotinus, Forsythia, Gardenia, Holly, Paeonia, Philadelphus, Physocarpus, Potentilla, Ribes, Rosa, Spirea, Weigela, Wisteria; **Deciduous**[◦]- Acer, Amelanchier, Betula, Celtis, Cercis, Crataegus, Ficus, Fraxinus, Ginkgo, Gleditsia, Magnolia, Malus, Populus, Prunus, Pyrus, Tilia; **Conifers**[◦] - Abies, Juniper, Picea, Pinus, Pittosporum, Pseudotsuga, Taxus, Thuja, Tsuga; **Non-Bearing Fruit Trees and Vines** – Apple (In California, Fireblight only), Pear, Grape (In California, Botrytis only), Citrus[◦]

[◦Not for use in California]

[◦]▪ On Roses, rates up to 70 fluid ounces (.252 lbs. metallic copper) of this product per 100 gallons of water may be used against Powdery mildew if no blooms are open.

POTTED FLOWERING PLANTS

Plant	Disease(s) / Pathogens	ALONGLIFE™ fl. oz./100 gals. (lbs. Cu^{2+}/100 gals)
African Violet	Botrytis, Powdery mildew	13 to 15 (.050 to .058)
Azalea	Botrytis	13 to 15 (.050 to .058)
	Colletotrichum	15 to 25 (.058 to .097)
	Cylindrocladium	15 to 35 (.058 to .136)
Calla Lily	Botrytis, Erwina	13 to 20 (.050 to .078)
Chrysanthemum	Botrytis, Crown gall, Erwina, Powdery mildew	15 to 25 (.058 to .097)
Cineraria[◦]	Botrytis	13 to 20 (.050 to .078)
Cyclamen	Botrytis	15 to 20 (.058 to .078)
	Erwina	15 to 20 (.058 to .078)
Daffodil[◦]	Botrytis	13 to 20 (.050 to .078)
Easter Lily	Botrytis	13 to 20 (.050 to .078)
Exacum[◦]	Botrytis	13 to 20 (.050 to .078)
Gerbera	Botrytis, Powdery mildew	15 to 25 (.058 to .097)
Gloxina[◦]	Botrytis	13 to 20 (.050 to .078)

Holiday Cactus[◦]	Botrytis	13 to 25 (.050 to .097)
	Erwina, Pseudomonas, Xanthomonas	15 to 50 (.058 to .194)
Hyacinth[◦]	Botrytis	13 to 20 (.050 to .078)
Hydrangea	Botrytis	13 to 25 (.050 to .097)
	Powdery mildew	12 to 25 (.047 to .097)
Iris[◦]	Botrytis	13 to 20 (.050 to .078)
	Erwina	15 to 20 (.058 to .078)
Kalanchoe	Botrytis	15 to 25 (.058 to .097)
	Erwina, Powdery mildew	15 to 35 (.058 to .136)
Lisianthus	Botrytis	13 to 20 (.050 to .078)
Orchid	Botrytis	13 to 15 (.050 to .058)
	Erwina, Pseudomonas, Xanthomonas	15 to 40 (.058 to .155)
Poinsettia	Botrytis	15 to 20 (.058 to .078)
	Scab	20 to 35 (.078 to .136)
	Powdery mildew (Preventative)	15 to 20 (.058 to .078)
	Powdery mildew (Theraputic)	20 to 35 (.078 to .136)
Primula	Botrytis	13 to 20 (.050 to .078)
	Erwina	15 to 20 (.058 to .078)
Rose Bush[◦]▪	Preventative: Black spot, Powdery mildew	15 to 30 (.058 to .116)
	Therapeutic: Black spot, Powdery mildew	35 to 50 (.136 to .194)
	Preventative: Botrytis, Cylindrocladium[◦], Downy mildew	15 to 20 (.058 to .078)
	Therapeutic: Botrytis, Cylindrocladium[◦], Downy mildew	25 to 50 (.097 to .194)
Tulip	Botrytis	13 to 20 (.050 to .078)

[◦Not for use in California]
[◦]▪ On Roses, rates up to 70 fluid ounces (.252 lbs. metallic copper) of this product per 100 gallons of water may be used against Powdery mildew if no blooms are open.

TROPICAL FOLIAGE PLANTS

Plant	Disease(s) / Pathogens	ALONGLIFE™ fl. oz./100 gals. (lbs. Cu^{2+}/100 gals)
Dracaena	Rust	13 to15 (.050 to .058)
Ferns[◦]	Botrytis, Erwina, Rhizoctonia	13 to 20 (.050 to .078)
Hibiscus	Botrytis	13 to 25 (.050 to .097)
	Pseudomonas	15 to 25 (.058 to .097)
	Xanthomonas	15 to 50 (.058 to .194)
Ivy	Botrytis	13 to 20 (.050 to .078)
	Xanthomonas	15 to 50 (.058 to .194)
Palms[◦]	Botrytis, Erwina	13 to 20 (.050 to .078)
	Pseudomonas, Xanthomonas	13 to 25 (.050 to .097)
Philodendron selloum[◦]	Fireblight	20 to 40 (.078 to .155)
Spathiphyllum	Botrytis	13 to 25 (.050 to .097)
	Cylindrocladium	15 to 25 (.058 to .097)
	Phytophthora	15 to 30 (.058 to .116)
Tropical Foliage	Botrytis, Powdery mildew	13 to 25 (.050 to .097)
	Erwina, Pseudomonas, Xanthomonas	20 to 50 (.078 to .194)

[◦Not for use in California]

SPRAY AND DIP APPLICATIONS DURING PROPAGATION

Harvesting Cuttings on Site

When harvesting cuttings on site, spray or fog stock plants using the rates in the following table 1 to 2 days prior to taking cuttings. Spray cuttings to drench again at same rate 2 to 3 days after sticking in rooting medium or dip cuttings for a few seconds prior to sticking.

Delivered Rooted, Callused or Unrooted Cuttings
When using shipped-in rooted, callused or unrooted cuttings, spray cuttings to drench using the rates in the following table 2 to 3 days after planting or sticking, or dip cuttings for few seconds prior to sticking. Under severe disease pressure, repeat application in 7 to 10 days.

HERBACEOUS AND WOODY STOCK PLANTS AND CUTTINGS

Plant	Disease(s) / Pathogens	ALONGLIFE™ fl. oz./100 gals. (lbs. Cu^{2+}/100 gals)
Azalea	Botrytis[◦]	13 to 25 (.050 to .097)
	Cylindrocladium	15 to 35 (.058 to .136)
Chrysanthemum	Botrytis[◦], Erwina	15 to 25 (.058 to .097)
Geranium	Botrytis	15 to 20 (.058 to .078)
	Xanthomonas	15 to 50 (.058 to .194)
Holiday Cactus[◦]	Botrytis	13 to 25 (.050 to .097)
	Erwina	15 to 20 (.058 to .078)
Hydrangea	Botrytis[◦]	13 to 25 (.050 to .097)
	Xanthomonas	15 to 25 (.058 to .097)
Lavender◦	Botrytis	15 to 20 (.058 to .078)
Mini-Rose	Botrytis[◦]	15 to 20 (.058 to .078)
	Cylindrocladium	15 to 50 (.058 to .194)
Poinsettia	Botrytis	15 to 20 (.058 to .078)
	Erwina, Scab, Xanthomonas[◦]	20 to 35 (.078 to .136)
Tropical Foliage	Botrytis[◦]	13 to 25 (.050 to .097)
	Cylindrocladium	15 to 25 (.058 to .097)
	Erwina	20 to 50 (.078 to .194)

[◦Not for use in California]

POST-HARVEST DIP APPLICATIONS ON CUT FLOWERS

Dip cut flowers and buds for a few seconds soon after cutting.		
Plant	**Disease**	**ALONGLIFE™ tsp./5gals. (lbs. Cu^{2+}/5 gals.)**
Alstromeria	Botrytis	0.75 to 1 (.0029 to .0038)
Carnation[◦]	Botrytis	2 to 3 (.0078 to .0116)
Chrysanthemum[◦]	Botrytis	1 to 2 (.0038 to .0078)
Delphinium[◦]	Botrytis	1 to 2 (.0038 to .0078)
Freesia	Botrytis	0.75 to 1 (.0029 to .0038)
Gerbera[◦]	Botrytis	2 to 3 (.0078 to .0116)
Gladiola	Botrytis	1.5 to 3 .0058 to .0116)
Orchid[◦]	Botrytis	2 to 3 (.0078 to .0116)
Rose	Botrytis	3 to 3.75 (.0116 to .0145)
Snapdragon[◦]	Botrytis	1 to 2 (.0038 to .0078)
Sweet Pea	Botrytis	1 to 2 (.0038 to .0078)

[◦Not for use in California.]

BULB APPLICATIONS

Dip bulbs for 5 minutes or spray bulbs to drip, then allow to dry before planting.		
Plant	**Pathogens**	**ALONGLIFE™ tsp./5gals. (lbs. Cu^{2+}/5 gals.)**
Calla Lilly	Erwina	30 (.116)

SOIL DRENCH APPLICATIONS (GREENHOUSE, FIELD, LANDSCAPE AND INTERIOR)

Plant	Disease(s) / Pathogens	ALONGLIFE™ fl. oz./100 gals. (lbs. Cu^{2+}/100 gals)
African Violet	Phytophthora	13 to 20 (.050 to .078)
Aster	Phytophthora	20 to 30 (.078 to .116)

Azalea	Cylindrocladium	20 to 35 (.078 to .136)
	Rhizoctonia	20 to 35 (.078 to .136)
Calla Lilly[◦]	Erwina	15 to 30 (.058 to .116)
Cyclamen	Erwina	15 (.058)
Ferns	Rhizoctonia	15 to 30 (.058 to .116)
Geranium	Botrytis	20 to 35 (.078 to .136)
Hosta	Erwina	15 to 25 (.058 to .097)
Impatiens	Phytophthora	20 to 35 (.078 to .136)
Japanese Maple	Verticillium	25 (.097)
Pansy	Phytophthora	15 to 25 (.058 to .097)
	Pythium	15 to 25 (.058 to .097)
Periwinkle	Phytophthora	15 to 20 (.058 to .050)
Pittosporum	Rhizoctonia	15 to 20 (.058 to .078)
Poinsettia	Phytophthora	15 to 25 (.058 to .097)
	Rhizoctonia	20 to 35 (.078 to .136)
Rhododendron	Rhizoctonia	20 to 35 (.078 to .136)
Rose	Black spot	20 to 35 (.078 to .136)
	Cylindrocladium	20 to 35 (.078 to .136)
Spathiphyllum	Cylindrocladium	20 to 35 (.078 to .136)
	Phytophthora	20 to 35 (.078 to .136)
Vinca Minor[◦]	Rhizoctonia	15 to 25 (.058 to .097)
[◦Not for use in California.]		

GREENHOUSE AND SHADEHOUSE CROPS

Notice to Users: ALONGLIFE™ may be used in greenhouses and shade houses to control diseases on crops which appear on this label, and specific instructions have been developed for crops listed. The grower should bear in mind the sensitivity of crops grown in greenhouses and shadehouses differs greatly from crops grown under field conditions. Neither the manufacturer nor the seller has determined whether or not ALONGLIFE™ can be used safely on all greenhouse and shadehouse grown crops. Consequently, injury arising from the use of ALONGLIFE™ on these types of greenhouse and shadehouse crops is the responsibility of the user. The user should determine if ALONGLIFE™ can be used safely prior to commercial use. In a small area, apply the recommended rates to the plants in question, i.e. foliage, fruit etc., and observe for 7 to 10 days for symptoms of phytotoxicity prior to commercial use.
Apply ALONGLIFE™ according to specific rates given for those crops in ounces (lbs. Cu^{2+}) per acre.
One fluid ounce = 29.6 milliliters = 6 teaspoons per 1,000 square feet is equivalent to 43.6 ounces (.168 lbs.) per acre. ALONGLIFE™ should be applied in adequate water for thorough coverage of plant parts. Begin application at first sign of disease and repeat at 7 to 14 day intervals or as needed; use shorter spray intervals during periods when severe disease conditions persist.

NOTE: Phytotoxicity may occur on young tender flush when ALONGLIFE™ is applied to citrus seedlings grown in greenhouses or shadehouses.

Crop	Disease	Rate ml. fl. oz. (lbs. Cu^{2+}) Per 1,000 sq. ft.	Directions
Citrus (Non-Bearing Nursery)	Brown rot, Citrus canker, Greasy Spot, Melanose, Pink pitting[◦], Scab[◦]	15 ml. .507 fl. oz. (.0020)	Begin applications when disease first threatens. Repeat at 30 day intervals or as needed depending on disease severity. Minimum retreatment interval is 7 days.
Cucumber	*Alternaria* leaf spot, Angular leaf spot, Anthracnose, Downey mildew, Gummy stem blight◦, Phomopsis, Powdery mildew	5 to 12 ml. .169 to .405 fl. oz. (.0007 to .0016)	Apply weekly when plants begin to vine. Use the higher rates when conditions favor disease.
Eggplant	*Alternaria* blight, Anthracnose, Phomopsis[◦], Phytophthora blight	9 ml. .304 fl. oz. (.0012)	Begin applications prior to development of disease symptoms. Repeat at 7 to 10 day intervals or as needed depending on disease

			pressure. Minimum retreatment interval is 7 days.
Pepper	Anthracnose[◦], Bacterial spot, Cercospora leaf spot	9 to 15 ml. .304 to .507 fl. oz. (.0012 to .0020)	Begin applications when conditions favor disease development and repeat at 7 to 10 day intervals or as needed depending on severity. Use the higher rates when conditions favor disease. Minimum retreatment interval is 7 days.
Tomato	Anthracnose[◦], Bacterial spot, Early blight, Gray leaf mold, Late blight, Septoria leaf spot	9 to 15 ml. .304 to .507 fl. oz. (.0012 to .0020)	Begin applications when disease first threatens and repeat at 7 to 10 day intervals or as needed depending on disease severity. Use the higher rates when conditions favor disease. Minimum retreatment interval is 7 days.

[◦Not for use in California]

SPRAY APPLICATION (SHADE AND ORNAMENTAL TREES) Sycamore

Disease(s)	Rate/A fl. oz. (lbs. Cu^{2+})	Maximum Rate Per Acre Per Application fl. oz. (lbs. Cu^{2+})	Directions
Anthracnose	9 to18 (.035 to .070)	18 (.070)	Apply as a full cover spray in 100 gals. of water or sufficient volume for thorough coverage at bud crack. Repeat 7 to 10 days later at 10% leaf expansion. Use the higher rates when disease is severe.

Do not apply more than 0.37 lbs. metallic copper (0.75 gals. of this product) per acre per year. Minimum retreatment interval is 7 days.

TRUNK INJECTION APPLICATIONS (SHADE AND ORNAMENTAL TREES)
Elm for Dutch Elm disease and Cankers (Botryodiplodia, Cytospora, Tubercularia)

Inject once during the growing season for control or prevention. Injection sites should be six inches or less above the soil line. Injection should not be done against Dutch Elm disease if the Elm appears more than 20% diseased or if the disease may have entered through root grafts from another diseased tree or stump. Remove dead and diseased limbs within 10 days after treatment.

Elm Size (diameter at chest height)	ALONGLIFE™ fl. oz. (lbs. Cu^{2+})	Water (gals.)
19 to 25 inches	2 (.008)	2
26 to 29 inches	3 (.012)	3
30 to 33 inches	4 (.015)	4
34 to 40 inches	5 (.019)	5
41 to 48 inches	6 (.023)	6

On Red Elm, use the dosage specified below for Red Oak.

Oak and Sycamore[◦] **(Anthracnose, Oak Wilt, Phytophthora)**
On Red Oak, use as preventative treatment only. Follow the injection directions in the *"ELM"* section, taking care that holes are not too deep on shallow-barked Oaks.

Treatment is best in the month before Fall color in northern climates.

Elm Size (diameter at chest height)	ALONGLIFE™ fl. oz. (lbs. Cu^{2+}) Red Elm/Red Oak	ALONGLIFE™ fl. oz. (lbs. Cu^{2+}) Oak/Sycamore	Water (gals.)
12 to 18 inches	1.0 (.004)	1.5 (.006)	3.0
19 to 26 inches	1.5 (.006)	2.0 (.008)	4.5
27 to 33 inches	2.0 (.008)	3.0 (.012)	6.0
34 to 40 inches	2.5 (.010)	3.5 (.014)	7.5
41 to 48 inches	3.0 (.012)	4.5 (.017)	9.0

[◦Not for use in California]

Shade Trees (Cankers: Cytospora on Cottonwood, Green Ash, Paper Birch; Botryodiplodia and Cytospora on Hackberry, Silver Maple; Nectria on Honey Locust)

Follow injection directions in the *"*Elm*"* section.

Elm Size (diameter at chest height)	ALONGLIFE™ fl. oz. (lbs. Cu^{2+})	Water (gals.)
10 inches	1.3 (.005)	1.0
20 inches	2.5 (.010)	2.0

TURFGRASS

Crop	Maximum per Application Rate/A fl. oz. (lbs. Cu^{2+}/A)	Maximum Annual Rate/A fl. oz. (lbs. Cu^{2+}/A)	Minimum Retreatment Interval (days)	Directions
Turfgrass	6.06 (.023)	42.42 (.164)	10	Treat turfgrass for black algae and moss with 6.06 fl. oz of product per acre.

STORAGE AND DISPOSAL

Pesticide Storage: Store in a safe place away from PETS AND KEEP OUT OF THE REACH OF CHILDREN. Store between 40° and 120° F, away from excessive heat. ALONGLIFE™ will freeze. Always keep container closed. Store ALONGLIFE™ in its original container only. Bulk ALONGLIFE™ shall be stored and handled in stainless steel, fiberglass, polypropylenes, PVCs or plastic equipment. Keep away from galvanized pipe and any nylon storage or handling equipment.

Pesticide Disposal: Excess ALONGLIFE™ must be disposed of through use. **Do not** contaminate lakes, rivers or streams as this may cause fish kills. Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label directions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance. In the event of a spill, neutralize with limestone or baking soda before disposal. May deteriorate concrete.

CONTAINER HANDLING:
For Nonrefillable Containers ≤5 gallons: Nonrefillable container. **Do not** reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Offer for recycling if available. If recycling is not available, puncture and dispose of in a sanitary landfill.

For Nonrefillable Containers >5 gallons: Nonrefillable container. **Do not** reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip

it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Offer for recycling if available. If recycling is not available, puncture and dispose of in a sanitary landfill.

For Refillable Containers: Refillable container. Refill this container with pesticide only. **Do not** reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10 percent full of water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Return to point of sale or offer for recycling if available. If recycling is not available, puncture and dispose of in a sanitary landfill.

LIMITED WARRANTY AND LIMITATION OF REMEDIES

To the extent consistent with applicable law, seller warrants that the product conforms to the chemical description and is reasonably fit for the purpose stated on the label for use under normal conditions, but makes no other warranties of FITNESS OR MERCHANTABILITY, expressed or implied, or any other warranty if the product is used contrary to the label directions, or under abnormal conditions or under conditions not foreseeable to the seller. To the extent consistent with applicable law, in no case shall the seller be liable for more than the cost of this product to the buyer and will in no event be liable for any consequential, special or indirect damages connected with the use or handling of this product. To the extent consistent with applicable law, this product is offered and the buyer or user accepts it subject to the foregoing terms which may not be varied.