Cultivation of Commercial Cannabis

Minor Use Permit & Early Activation

For

“Nine” M - Type 2B: "Small Mixed-Light"

(For a total of 90,000 SQFT)

"Cultivation for medicinal cannabis in a greenhouse, glasshouse, conservatory, hothouse, or other similar structure using light deprivation and/or artificial lighting below a rate of 25 watts per square foot between 5,001 and 10,000 square feet, inclusive, of total canopy size on one premises.

AND

Type 13: Distributor Transport Only, Self-Distribution License

"The transport of medicinal cannabis goods between entities licensed pursuant to California Code"

Project Description

The project is located in Kelseyville, CA, approximately three (3) miles from the intersection of Highway 175 and 29.

- *8445 State Highway 175, Kelseyville, CA 95451 (APN: 009-022-67) – **Cultivation Site***
  - *116 Acres in size approx.*
- *9060 Bottle Rock Road, Kelseyville, CA (APN: 011-055-21) – **Clustering only***
  - *25 acres in size approx.*
- *9020 Bottle Rock Road, Kelseyville, CA (APN: 011-055-20) – **Clustering only***
  - *40 acres in size approx.*

SEE ATTACHED PROJECT DESCRIPTION

EXHIBIT "A"

Project Contacts

PROJECT ADDRESS:

- 8445 State Highway 175, Kelseyville, CA 95451 (APN: 009-022-67) – **Cultivation Site**
  - 116 Acres in size approx.
- 9060 Bottle Rock Road, Kelseyville, CA (APN: 011-055-21) – **Clustering only – No Cultivation**
  - 25 acres in size approx.
- 9020 Bottle Rock Road, Kelseyville, CA (APN: 011-055-20) – **Clustering only – No Culitvation**
  - 40 acres in size approx.

PROJECT INFORMATION (REFER TO ATTCHMENT FOR PROJECT NAME, APPLICANT INFO)

Name of Project:

Project Location: 8445 Hwy 175, Kelseyville, CA 95451

Project Contact:

Phone: (

Email:

Property Owner(s):

Name: Greg Hanson

Address: 3360 Merritt Rd, Kelseyville, CA 95451 Email: greghanson3360@gmail.com Telephone#:

(707) 900-1476 / (707) 695-6829

GRIZZLY RANCH, LLC

PROJECT DESCRIPTION EXHIBIT "A"

The applicant is requesting approval of a Minor Use Permit (MUP 20-12) with an Environmental Analysis (Initial Study, IS 20-69) to allow **nine (9) M – Type 2B "Small Mixed Light" licensed to allow up to 90,000 square feet *(10,000 square feet for each license)*** of cannabis cultivation canopy using light deprivation and/or artificial lighting below a rate of twenty-five (25) watts per square foot and a **Type 13 Cannabis Distributor Transport Only, Self-distribution License**. The operation would operate year-around.

The cannabis cultivation would occur within **fifty-seven (57) - 2, 000 square foot engineered greenhouses equipped with air filtration systems and black out film to reduce odors and lighting impacts to the surrounding area, including the dark skies.**

The cumulative square footage of the **fifty-seven (57) green houses would be 114,000 square foot but the cannabis cultivation canopy would total 90,000 square feet *(the allowable canopy area per the nine (9) M – Type 2B "Small Mixed Light" licensed to allow up to 90,000 square feet of cannabis cultivation canopy).*** The remaining square footage within the engineered greenhouses would consist of walkways, and similar areas to allow for adequate space when maintaining the operations and/or bringing in equipment to assist with the cultivation.

The operation will be tying into the PG&E Electrical Grid by obtaining the necessary permits prior to installation/operation. In addition to tying into the electrical grid, the applicant may install ground mount solar in the near future to lessen the amount of energy used from the electrical grid and to have as an alternate energy backup if a power outage were to occur, such as Public Safety Power Shutoff (PSPS) or be completely off grid.

All infrastructure for the operation would be developed within a previously disturbed area that has been used for cattle grazing/hay cultivation since the late 1800's, and in areas where dense vegetation was removed to grade *(no ground disturbance occurred – all vegetation was cut flush to natural grade*) in accordance with Chapter 13 of the Lake County Code and was permitted through the Lake County Smoke Management Plan (burning of standing brush and fire brush abatement/safety clearing) and a LE5/7 Cal fire Burn Permit. The applicant will routinely maintain the cleared vegetation in accordance with the above permits and codes.

The cultivation area would be secured within a six to eight-foot wire fence, with cemented post on 6-8-foot intervals, with privacy mesh to screen the developed areas from view. Additionally, supporting infrastructure would include storage sheds, water tanks, greenhouses for immature cannabis plants, water tanks/co-feeding tanks and processing structures for cannabis cultivations *[Article 68 (Definitions) of the Lake County Zoning Ordinance fines "Cannabis cultivation as any activity involving the germinating, cloning,*

seed production, planting, growing, and harvesting of cannabis plants and the on-site drying, curing, grading, or trimming of cannabis plants"]. The supporting infrastructure includes the following: *[Please Note: No manufacturing/extraction of cannabis or cannabis by-products will occur onsite].*

- Five (5) – 5,000 square foot processing structures (25,000 SQFT cumulative) for the onsite drying, grading, curing, or trimming of all cannabis plants as defined above.

- Twelve (12) – 2,000 square engineered greenhouses equipped with air filtration systems and blackout film to house all ***immature cannabis plants***. Once the cannabis plants have reached maturity, they would be transferred to the cultivation greenhouses (24,000 SQFT cumulative).

- Fifty-seven (57) co-feeding water/ mixing tanks for each greenhouse. The tanks are approximately 1,700 gallons and would be used for watering and to prepare the appropriate nutrient mix for the cannabis plants.

- Fifteen (15) – 10,000-gallon water storage tanks *(total water storage 150,000 gallon).* Each water storage tanks would be equipped with a draft fire hydrant to allow emergency services access to the water. The water would be pump via under piping to the co-feeding tanks.

- Five (5) – 120 square foot storage sheds (600 SQFT cumulative). The storage sheds would store fertilizers, pesticides, tools, equipment and other tools necessary for maintaining the operation/project parcels.

PROJECTED WATER USAGE:

The cannabis will be grown in above ground pots/boxes within the engineered greenhouses equipped with air filtration system and a black out film. The cannabis plants will be irrigated at agronomic rates via drip irrigation system.

The operation will use mulch and water during the morning or late afternoon/early evenings when temperatures are cooler to minimize evaporative loss. The cannabis plants will be hand watered after every top dressing, which is applied three (3) times per crop run/rotation *(may be more depending on weather conditions).*

During cultivation, the cannabis pants will receive nutrients approximately once to twice per week throughout the growing season. Nutrients are mixed in co-feeding tanks with a release valve on the underside of the tanks to completely flush residual nutrients which are then re-mixed and reused in subsequent feedings.

The operation will draw water from an approved well through the Lake County Department. The well process greater than 35 gallons per minute. The water will then be pump from the well through underground piping to the **fifteen (15) – 10,000-gallon water storage tanks *(total water storage 150,000 gallon).*** Each water storage tanks would be equipped with a draft fire hydrant to allow emergency services access to the water, if necessary. The water will then be diverted through underground piping to the cultivation area to the **fifty-seven (57) co-feeding tanks for each greenhouse. The tanks are approximately 1,700 gallons and would be used to water and/or prepare the appropriate nutrient mix for the cannabis plants.** The water would be then pump through the drip line irrigation system to the cannabis plants.

The operation anticipates using approximately **4,41.75 gallons of water per day** for the mixed light cultivation, which is approximately **161,238.75 gallons annually**. *(The above figures are weather dependent and are only estimated water usage totals. Applicant will install flow meters at all critical points to measure actual yearly water usage, including documentation as required pursuant to Article 27 of the Lake County Zoning Ordinance)*

FERTILIZERS: Fertilizers are stored in the storage sheds on the property within the120 square foot sheds. Covered stations, with appropriate side protection are also located in the cultivation areas for fertilizers that are in constant use. Fertilizers are applied per labels and applied at agronomic rates. Applicant will follow the pesticide use protocols as stated above for fertilizer applications. Reactive fertilizers are stored separately from pesticides or other reactive chemicals. Material safety data sheets (MSDS) are properly posted in all storage areas and at cultivation sites.

SOIL AMENDMENTS: Soil amendments are not stored on site but rather are brought on site and used as necessary. Applicant will follow use protocols as outlined in the pesticide protocols section. A list of soil amendments and fertilizers are attached hereto.

PESTICIDES: The operation does not use any chemical pesticides or herbicides. The operation employs an integrated pest management system that employs bio-pesticides and predator attractant plants to eliminate the need for conventional pesticides. If needed in the future, pesticides will be stored in storage sheds equipped with impermeable floor surfaces in secondary containment totes to prevent leaching into ground water or percolating to receiving waters. Approved spill proof containers with appropriate warning and information labels will be used to transport pesticides to and from cultivation areas. The operation will maintain and keep personal protective equipment required by the pesticide label in good working order. Coveralls will be washed after all use when required.

All required warning signs will be posted and material safety data sheets (MSDS) will be kept in the area where pesticides are stored. Emergency contact information in the event of pesticide poisoning shall also be posted at the work site including the name, address and telephone number of emergency medical care facilities. Change areas and decontamination rooms will be available off-site.

Before making a pesticide application, operators will evaluate equipment, weather conditions, and the property to be treated and surrounding areas to determine the likelihood of substantial drift or harm to non-target crops, contamination, or the creation of a health hazard.

In an event of a spill or leak, the contaminated soil will be stored, transported, and disposed of consistent with applicable local, state, and federal regulations

PROCESSING PLAN: Applicant will be processing *(onsite drying, curing, grading, trimming of cannabis plants)* **within five (5) – 5,000 square foot structures, for a total of 25,000 square feet. [**According to Article 68 – Definitions of the Lake County Zoning Ordinance, "Cannabis cultivation is any activity involving the germinating, cloning, seed production, planting, growing, and harvesting of cannabis plants and the on-site drying, curing, grading, or trimming of cannabis plants". No manufacturing/extraction of cannabis or cannabis by-products will occur onsite].

Once the cannabis has been prepped for transportation, the applicant, or one of their employees will transport the cannabis in accordance with their Type 13 Cannabis Distributor Transport Only, Self-distribution License or the applicant will have a professional certified/approved transport organization who specializes in the transportation of cannabis projects transport the cannabis material to approved facilities.

HOURS OF OPERATION: The operation will be open Monday through Saturday, 9:00 AM to 7:00 PM and Sunday 12:00PM to 5:00PM. All deliveries and pick-ups restricted between 9:00 AM to 5:00 PM. The site will not be open to the general public.

EMPLOYEE AMENITIES: All eemployees will have access to safe drinking water and toilets and handwashing facilities that comply with applicable federal, state, and local laws and regulations at all times. To ensure safety, all water tanks are labeled as Potable – Domestic Use or Non-Potable Do Not Drink signage. Plumbing facilities and water source will be capable of handling increased usage without adverse consequences to neighboring properties or the environment. The applicant will supply portable restrooms until permanent facilities are constructed.

PETROLEUM PRODUCTS AND STORAGE: All flammable/petroleum products will be in containers within secondary containment that is separated from the pesticides and fertilizers. The storage sheds will be located within the fenced cultivation area located in front of the greenhouses. In an event of a spill or leak, the contaminated soil will be stored, transported, and disposed of consistent with applicable local, state, and federal regulations

WASTE MANAGEMENT: Excess plant matter (plant stems) will be composted on site in a designated area as indicated on the site plan. According to the applicant, it is estimated approximately 300 pounds of vegetative waste will be produced annually. No burning of cannabis material or waste from the operation will occur.

ACCESSWAY/ROADWAYS: The project parcels are accessible via a private driveway located off of State Highway 175 *(which is maintained by the California Department of Transportation).* The project parcels are developed with existing ranch roads which will adhere to all federal state and local agency reequipment, including 4290/4291 prior to operation. All necessary access ways, will be surface with an all-weather material (*Six (6) inches of gravel or crushed rock, an oil and rock surface, asphaltic concrete, or concrete).*

RUNOFF CONTROL MEASURES: The operation irrigates at agronomic rates that does result in runoff. All cultivation areas are located at least 100 feet from the top of bank of any known perennial and/or season waterway, including the known wetland on the project's parcels. To control runoff, the operations will install runoff control features/Best Management Practices in accordance with Chapter 29 and 30 of the Lake County Code around the cultivation areas and roads, and will be maintained for life of the project. The operation will also consist of ditch relief culverts to help disperse flows to prevent gullying and connectivity to watercourses. Gutters and "French Drains" around the cultivation areas channel runoff to stable areas that pose little threat of erosion or sediment transport to receiving waters. Energy dissipaters will be installed at outlets of relief ditches and culverts to disperse flows and control runoff from reaching watercourses on site.

CONSTRUCTION: Upon approval of the Minor Use Permit, the applicant would submit the necessary structural plans (Building Permit Application) to the Community Development Department for review and approval. The development of the project would consist of less than 500 cubic yards of ground disturbance, which is allow upon issuance of a building permit. All construction activities, including engine warm-up, will be limited to Monday through Friday, between the hours of 7:00 AM to 7:00 PM and adhere to all noise requirement in the Lake County Code. Additionally, all equipment will be maintained and operated to all federal, state and local agency requirements to minimize spillage or leakage of hazardous materials. All equipment will be refueled in locations more than 100 feet from surface water bodies. Servicing of equipment will occur on an impermeable surface. Water from the approved onsite well will be used to mitigate the generation of dust during development, including operations. The overall construction of the project is anticipated to take six to twelve weeks (weather dependent).

EROSION CONTROL MEASURES: Best Management Practice will be implemented in accordance with Chapter 29 and 30 of the Lake County Code and be maintained for life of the project. The applicant will continuously monitor all Best Management Practices, including inspections after significant weather patterns. All measure will be in place prior to operation.

SCHEDULE OF ACTIVITIES DURING EACH MONTH OF THE GROWING AND HARVESTING SEASON *(SUBJECT TO CHANGE)*

JANUARY

- Mixed Light
    - Vegetate clones in on-site nursery

- Check irrigation
- Prepare beds
- Begin rotating plants from nursery into mixed light greenhouse
- Pot vegetated clones prior to next month's planting
- Harvest run of plants started in October/November of last year

FEBRUARY

- Mixed Light
  - Planting first run of mixed light plants in greenhouse
  - Vegetate clones in on-site nursery
  - Begin irrigation via drip system to flowering plants
  - Feeding application once per week
  - Irrigation every six to ten days
  - Trellis and maintain plants

MARCH

- Mixed Light
  - Harvest first run of mixed light plants
  - Pot vegetated plants
  - Transplant second run of mixed light into flowering greenhouses
  - Feeding application once per week
  - Irrigation every six to ten days

APRIL

- Mixed Light
  - Vegetate clones in on-site nursery
  - Pot vegetated plants
  - Feeding application once per week
  - Irrigation every six to ten days
  - Trellis and maintain plants

- Full Term Outdoor
  - Rotate clones to larger pots from vegging greenhouse
  - Amend soils
  - Install irrigation drip system

MAY

- Mixed Light
  - Pot vegetated plants
  - Feeding application once per week
  - Irrigation every other day
  - Harvest second run plants at the end of the month

  - Rotate in third run of vegetated clones to flowering greenhouses
  - Check irrigation
  - Re-amend beds using composted materials on site

- Full Term Outdoor
  - Prepare mature clones for planting
  - Amend soils
  - Install drip irrigation

JUNE

- Mixed Light
  - Finish rotating in third run of vegetated plants
  - Vegetate clones in on-site nursery
  - Check irrigation
  - Irrigation every other day
  - Feeding application once per week
  - Train and maintain plants

- Full Term Outdoor
  - Applicant plants mature clones in larger pots
  - Install trellis system for mature plants
  - Irrigation begins
  - Applicant top dresses and hand waters once per month

JULY

- Mixed Light
  - Vegetate clones in on-site nursery
  - Pot vegetated plants
  - Feeding application once per week
  - Irrigation every other day
  - Trellis and maintain plants

- Full Term Outdoor
  - Applicant monitors plant growth
  - Pruning plants and plant maintenance
  - Irrigation
  - Applicant top dresses and hand waters once per month

AUGUST

- Mixed Light
  - Begin harvesting third run of vegetated plants
  - Rotate in fourth run of vegetated clones into flowering greenhouse
  - Feeding application once per week
  - Irrigation other day

  - Remove soils and re-apply soils to bed

- Full Term Outdoor
  - Applicant monitors plant growth
  - Pruning plants and plant maintenance
  - Irrigation
  - Applicant top dresses and hand waters once per month

SEPTEMBER

- Mixed Light
  - Vegetate clones in on-site nursery
  - Pot vegetated plants
  - Feeding application once per week
  - Irrigation every other day
  - Trellis and maintain plants

- Full Term Outdoor
  - Applicant monitors plant growth
  - Pruning and plant maintenance
  - Irrigation
  - Last top dress and hand watering application

OCTOBER

- Mixed Light
  - Begin harvesting fourth run of vegetated plants
  - Rotate in next year's run of vegetated clones into flowering greenhouse
  - Feeding application once per week
  - Irrigation every six to ten days

- Full Term Outdoor
  - Applicant begins harvesting flower

NOVEMBER

- Mixed Light
  - Vegetate clones in on-site nursery
  - Pot vegetated plants
  - Feeding application once per week
  - Irrigation every six to ten days

- Full Term Outdoor
  - Harvest complete; transferred off-site to process
  - Clean up cultivation site and winterize

DECEMBER

- Mixed Light
  - Vegetate clones in on-site nursery

- Pot vegetated plants
- Feeding application once per week
- Irrigation every other day
- Trellis and maintain plants

Table of Contents

Section 1 Air Quality

1.1 PURPOSE

The applicant is Air Quality Management Plan (AQMP) is designed to promote the health, safety, welfare; environmental quality, and reduce potential for nuisance cultivation will occur within engineered greenhouses equipped with air filtration systems and balk out film.

The Air Quality Management Plan includes measures to monitor and evaluate the performance and implementation of the plan, as well as ensure that all data and information is reported to the appropriate local agencies.

1.2 SCOPE

The applicant Air Quality Management Plan is as follows:

- Identifying equipment and activities which may cause odor, contaminates, or other air quality nuisance;
- Establishing responsible parties and best management practices if nuisance complaints occur.
- Mitigating the amount of air pollution and particulates that are generated and emitted during the build-out and expansion of cultivation site.
- Minimizing employee exposure to contaminants and particulates that may be harmful to their health, including areas where cannabis plant may be dried, cured, trimmed, packaged or handled.
- All employees are required to follow the procedures outlined in this plan.
- Greenhouses will be equipped with Air Filtration Systems - Refer to Greenhouse Air Filtration Attachment for details.

1.3 OVERVIEW

The applicant is will cultivate cannabis using organic methods and preventative pest management strategies along with predator insect defense introduction, and therefore we anticipate generating a minimal amount of air pollution or particulates that may pose any risk of harm to environment and/or any individual working at or near the cultivation site. The cultivation site is located in a remote area off a private road that connects to 8445 State Highway 175. Our proposed cultivation site will comply to all reasonable complaints filed by our neighbors within 1000 ft. of the proposed site. The applicant (Mt. Olive) will plant Mint, Peppermint, Rosemary, Thyme, Basil, and Onions around the perimeter of the proposed cultivation site to counteract the smell during the most fragrant part of the year from September to October. If there is an odor complaint the applicant or their designated manager will respond immediately with a phone call and immediate attention to the complaint filed.

1.4 ROLES AND RESPONSIBILITIES

The Director of Cultivation will be personally responsible for responding to any complaints by neighbors.

The applicant will supply neighboring land owners with the personal contact information for the applicant or their designee in case odors issues arise.

1.5 MINIMIZING ODOR, AIR POLLUTION AND PARTICULATES

The applicant is anticipating the following sources to be the most significant emitters of odor, air pollutants and particulates. However, we do not anticipate any single source or combined sources to be harmful or detrimental to the neighboring residences or the air quality of Lake County.

Sources/Activities:

- Dust from dirt road and cultivation soil from site;
- Emission from gas powered tractor, wood chipper, and other equipment;
- Odor from processing facility and cultivation site;
- Greenhouses Equipped with Air Filtration Systems - Refer to Air filtration Attachment for details

DUST FROM DIRT ROAD (BMPs)

The applicant understands that unpaved roads can be a potential source of air pollutants. This problem generally occurs during the dry season from May through October. The applicant will have BMPs in place to mitigate particulate matter from entering the air from vehicles of visitors or employees. The property road will be well maintained and monitored regularly for quality of its surfacing (Gravel or an all -weather surface). Possible mitigation measures for reducing particulate matter produced by dirt road travel includes, but is not limited to as follow:

- Hiring a water truck as needed to wet the road surface and reduce particulate generation;
- Maintaining the surface of the road; or as needed to reduce particulate matter;
- Reducing the amount of travel on dirt roads through efficient management and enforcing strict speed limits on all road on property;
- Consolidate activities like solid waste removal and supply deliveries to as few per possible per week.

DUST GENERATION FROM SITE (BMPs)

The applicant understands that there is potential for the generation of particulate matter during soil disturbance activities. The following best management practices will be employed to reduce this risk:

- Establish a full, year-round ground cover within the cultivation site to limit particulate generation during work activities;
- Limit soil disturbance activities to periods when enough moisture is present in the soil to limit particulate

generation;

- The actual cultivation site will be mulched or planted into cover crop as soon as possible afterany activities that disturb the surface of the soil.

EMMISION FROM TRACTOR AND OTHER EQUIPMENT (BMPs)

The applicant is expecting to use the following equipment, which could impact air quality, forcannabis cultivation related activities:

- Gas /Diesel powered Tractor
- Gas powered wood chipper
- Gas powered brush cutter
- Gas powered lawnmower
- Gas powered chainsaw

In order to mitigate potential effects on air quality from the named farm equipment, the applicant is will ensure that this equipment used on a minimal basis and all equipment is properly maintained to ensure efficient operation.

ODOR FROM PROCESSING FACILITY (BMPs)

In rooms where cannabis is cultivated, handled, dried, cured and generally processed, the atmosphere will be scrubbed using inline fans that have been coupled to filters that contain activated carbon. Activated carbon is the cannabis industry standard for the elimination of cannabis odor. Additional HEPA filters will be installed and used to eliminate harmful bacteria and particulates.

The applicant will log and maintain accurate records, repairs and replacements of the ventilation and odor mitigation systems and will retain records.

POINT SOURCE CONTROL MANAGEMENT

No materials will be used as much as such as paints, composite wood, adhesives, and sealants that have the potential for significant emissions. Construction areas if any will be isolated to prevent contaminatingnon-construction areas.

1.6 ODOR COMPLAINT OR NUISANCE MANAGEMENT (BMPS)

The applicant and/or project manager will be designated as the responsible party for odor complaints. He will be trained to take the following steps in response to an odor complaint.

- Should an odor complaint be received, he will respond as soon as possible or within 12 hours of receiving the complaint to discuss the issue, recording time, date and person affected; and then will then immediately stop all activities that may cause the odor;
- If he believes that the odor drift was caused by the wind, he will stop operations for one hours until the odor dissipates or until the direction of the wind changes, at which point he will restart operations;
- If the complaint occurs for a second time in a period of 8 hours, he will halt operations for the day. In the case that the odor is the result of the receiving or storage of compost, the applicant will follow the following practices:
    - Consider blanketing the compost with non-odiferous material;
    - Expedite the receiving process

ADDITIONAL ODOR MITIGATION PRACTICES FOR OUTDOOR CULTIVATION

- Planting hedge rows of native flowering shrubs with coinciding flowering cycles to cannabis, if necessary;
- Development of misting system which serves to increase ambient humidity in the cultivation site and reduce offsite odor drift;

The applicant will monitor and document the performance of the Air Quality Management Plan implemented at the premises.

On an annual basis, the applicant is will review all documentation pertaining to the performance of the Air Quality Management Plan as to determine if the risk of nuisance odors are within acceptable tolerances or ranges; or can be mitigated further by implementing new best management practices.

1.7 REPORTING PERFORMANCE OF AQMP

All data and information will be made available to Lake County Community Development Staff, and the Lake County Air Quality Management District as required or upon request.

1.8 ONGOING REVIEW

The applicant and/or project manager will review all procedures in the AQMP once a year, or as needed; and he will take action to ensure full compliance with local, state, and federal regulations that pertain to air quality.

Downwind of the CW facility, from 1/8 to 1-mile on public access roadways, the ambient air was without a discernible odor. On the day of the evaluations, 4/6/2017, the weather conditions were dry (20% relative humidity), mostly sunny (60-deg F) with wind direction at the CW facility in Pahrump, NV was from the south at moderate wind speeds of 10-mph.

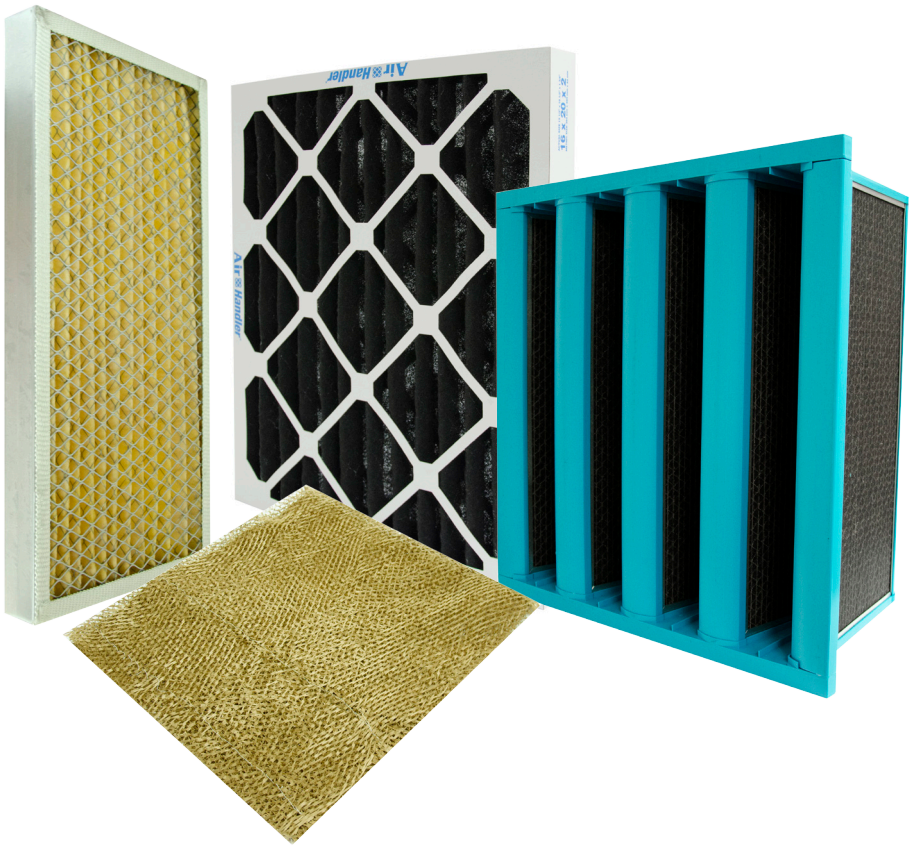
The Fogco System appeared to create a uniform evaporating fog-mist with no free-water droplets observed in the air, nor upon the immediate ground area. The Benzaco Scientific odor counteractant, when observed close to the immediate fog-mist, did not appear to have a strong, specific top-note fragrance, other than slightly floral and/or sweet.

The evaluation of the Fogco high-pressure fogging system, treating the exhaust air with Benzaco's ODOR-ARMOR 420® at the Pahrump, Nevada, CW Nevada marijuana grow facility demonstrated efficacy-effectiveness in treating the facilities air emissions, yielding "no discernible marijuana odor".

Respectively submitted,

Charles McGinley
Technical Director
St. Croix Sensory, Inc.

SPECIALTY FILTRATION



For our complete line of filters, visit grainger.com/airhandler

Find it at Grainger.

Air Handler®

Clear the air. Ease your mind.

CARBON PLEAT

- Dual purpose: Filters particulate and absorbs odor
- Effective gas phase filter for intermittent gas applications
- Excellent filter to determine if carbon filters will help remove the odor
- Low pressure drop
- Disposable, easy installation, low service cost
- All filters wrapped and sealed in protective plastic bags to maintain filter viability

DESCRIPTION

The Air Handler Carbon Pleat filters are designed for the control of intermittent odor problems. Carbon pleated filters remove a wide range of odors and common indoor air pollutants. The advanced media has improved capability to absorb nuisance odors.

The fitler's construction consists of pleated, non-woven/ polyester media, impregnanted with an activated carbon. The pleated filter pack is enclosed in a heavy duty, moisture resistant (beverage board) die-cut frame that will not crack, warp or distort under normal operating conditions.

BENEFITS

In some light duty applications, the effectiveness of carbon pleated filters can equal many long-term solutions used for controlling odor problems. Carbon pleated filters can be used as a low cost method to verify the potential effectiveness of carbon for controlling odors. The carbon pleat receives an efficient removal of particulate MERV 6 per ASHRAE Standard 52.2-2007.

APPLICATIONS

The Air Handler Carbon Pleat is well suited for use where gas contaminants are low and/ or intermittent. Provides relief of odors created by cigarette smoke, industrial process, copier, pets and musty areas.

These filters are well suited for use in air make-up systems and re-circulation applications in office buildings, hospitals, airports, food courts and manufacturing facilities.

For our complete line of filters, visit grainger.com/airhandler

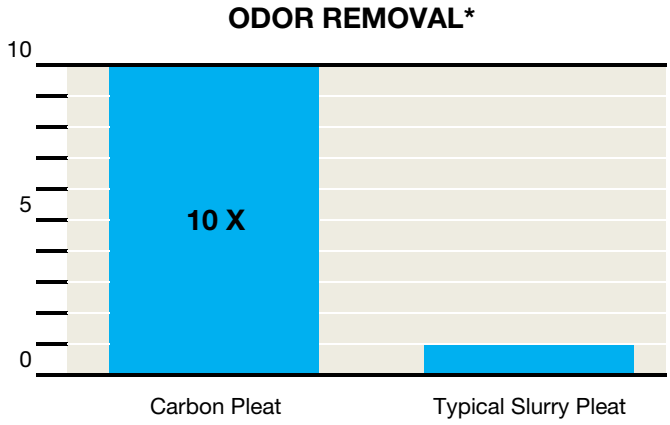
Find it at Grainger.

Air Handler®

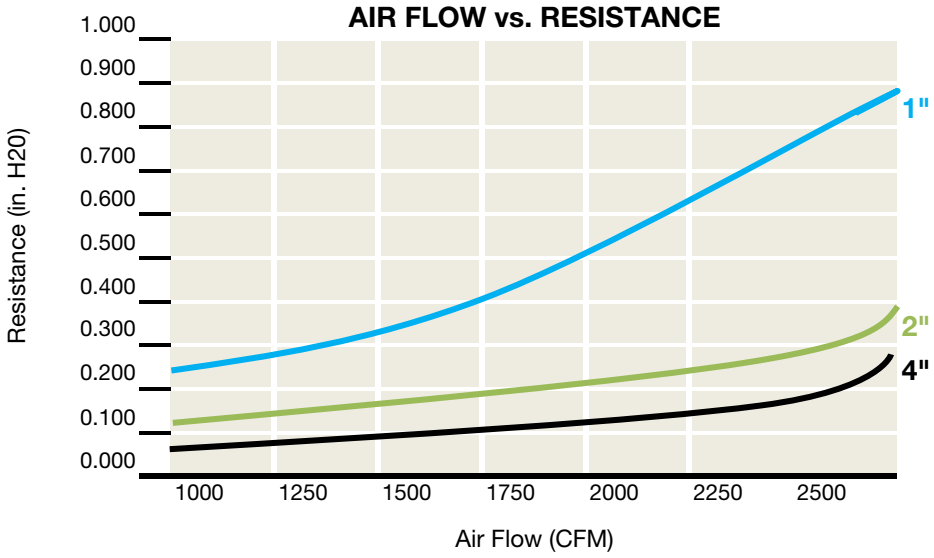
Clear the air. Ease your mind.

CARBON PLEAT

ODOR REMOVAL



*Amount of gas or odor removed at 50% break through given 880 PPM of Toluene @ 40 (media velocity)



*Results based on 24x24 filter

DIMENSIONS & PART #S

Nominal Size (in.)			Initial Resistance @ 250 FPM ("w.g.)	Initial Resistance @ 500 FPM ("w.g.)	Grainger #
H	W	D			
10	10	1	0.23	0.63	6B915
10	20	1	0.23	0.63	6B914
12	12	1	0.23	0.63	6B912
12	20	1	0.23	0.63	6B911
12	24	1	0.23	0.63	6B910
14	20	1	0.23	0.63	6B907
14	24	1	0.23	0.63	6B905
14	25	1	0.23	0.63	6B904
15	20	1	0.23	0.63	6B902
16	16	1	0.23	0.63	6B900
16	20	1	0.23	0.63	6B899
16	24	1	0.23	0.63	6B896
16	25	1	0.23	0.63	6B894
18	20	1	0.23	0.63	6B891
18	24	1	0.23	0.63	6B890
18	25	1	0.23	0.63	6B887
20	20	1	0.23	0.63	6B886
20	24	1	0.23	0.63	6B883
20	25	1	0.23	0.63	6B880
22	22	1	0.23	0.63	6B877
24	24	1	0.23	0.63	6B876
25	25	1	0.23	0.63	6B873
10	20	2	0.13	0.34	6B913
12	24	2	0.13	0.34	6B909
14	20	2	0.13	0.34	6B906
14	25	2	0.13	0.34	6B903
15	20	2	0.13	0.34	6B901
16	20	2	0.13	0.34	6B898
16	24	2	0.13	0.34	6B895
16	25	2	0.13	0.34	6B893
18	24	2	0.13	0.34	6B889
20	20	2	0.13	0.34	6B885
20	24	2	0.13	0.34	6B882
20	25	2	0.13	0.34	6B879
24	25	2	0.13	0.34	6B875
25	25	2	0.13	0.34	6B872
12	24	4	0.07	0.23	6B908
16	25	4	0.07	0.23	6B892
20	20	4	0.07	0.23	6B884
20	24	4	0.07	0.23	6B881
20	25	4	0.07	0.23	6B878
24	24	4	0.07	0.23	6B874

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Clear the air. Ease your mind.

CARBON HONEYCOMB

- Dual function: Odor absorption and particulate filtration
- Granular activated carbon to remove odorous and irritating gaseous contaminants
- Honeycomb construction ensures low air flow resistance
- Effective gas phase filtration in a compact design
- Individually wrapped in plastic

DESCRIPTION

These combination particulate and carbon filters are designed for the control of intermittent odor problems in re-circulated air applications.

Honeycomb style filters are designed to remove a wide range of pollutants. The 1" honeycomb filters are constructed using 0.5" honeycomb with a 0.5" pre-filter pad. The 2" honeycomb filters are constructed using 0.75" of honeycomb with a 1" pre-filter pleat offering medium efficiency.

BENEFITS

The activated carbon presented in the honeycomb filter acts like a porous sponge, collecting and retaining certain chemical compounds on its surface. The ability of activated carbon to absorb a gas or vapor is called its activity.

Carbon used in these filters has a minimum carbon tetrachloride (CCL4) activity of 60% which means it will absorb 60% of its own weight of CCL4 vapor under a standard set of conditions.

Max. Temp. - 150°F

APPLICATIONS

Dual purpose activated Carbon Honeycomb filters are designed to eliminate general odor problems where concentration levels are not extremely heavy. These combination filters offer medium particulate filtration along with an absorbent carbon for fume and odor removal.

The honeycomb style filters are used extensively in office buildings, hospitals, airports, food courts and manufacturing facilities.

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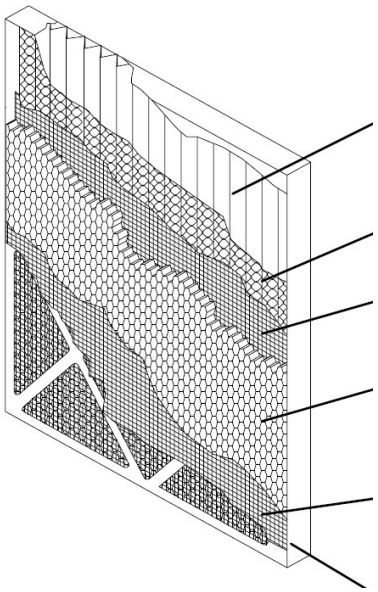
CARBON HONEYCOMB

ODORS REMOVED

- Cooking Odors
- Sewer Odors
- Gasoline Fumes
- Environmental Tobacco Smoke
- Most Volatile Organic Compound (VOC) Odors

FILTER ADVANCEMENTS



*NOTE: for 1" version a poly pad and no expanded metal replace the pleat media

DIMENSIONS & PART #S

0.5" POLY PRE-FILTER

50% Carbon Fill (with Pre-Filter)			
H	W	D	Grainger #
10	10	1	6B869
10	20	1	6B868
12	12	1	6B866
12	20	1	6B865
12	24	1	6W735
14	20	1	6B864
14	24	1	6B862
14	25	1	6B861
15	20	1	6B859
16	16	1	6B857
16	20	1	6W736
16	24	1	6B856
16	25	1	6W737
18	20	1	6B854
18	24	1	6B853
18	25	1	6B851
20	20	1	6W738
20	24	1	6B850
20	25	1	6W739
22	22	1	6B848
24	24	1	6W740
25	25	1	6B847

1" PLEATED PRE-FILTER

50% Carbon Fill (with Pre-Filter)			
H	W	D	Grainger #
10	20	2	6B867
12	24	2	6W741
14	20	2	6B863
14	25	2	6B860
15	20	2	6B858
16	20	2	6W742
16	24	2	6B855
16	25	2	6W743
18	24	2	6B852
20	20	2	6W744
20	24	2	6B849
20	25	2	6W754
24	24	2	6W746
25	25	2	6B846

0.5" POLY PRE-FILTER

1" PLEATED PREFILTER

H	W	D	50% Carbon Fill (No Pre-Filter) Grainger #	100% Carbon Fill (No Pre-Filter) Grainger #	100% Carbon Fill (with Pre-Filter) Grainger #
10	20	1	2JTW5	2JUA5	2JTR1
12	24	1	2JTW7	2JTR3	2JUT6
14	20	1	2JTW9	2JUA7	2JTR5
14	25	1	2JTX2	2JUA9	2JTR7
15	20	1	2JTX4	2JUC2	2JTR9
16	20	1	2JTX6	2JUC4	2JTT2
16	25	1	2JTX8	2JUC6	2JTT4
20	20	1	2JTY7	2JUC8	2JTT6
20	25	1	2JTY1	2JUD1	2JTT8
24	24	1	2JTY3	2GJD5	2JTU1
25	25	1	2JTY5	2JUD3	2JTU3
12	24	2	2GJD9	2JUD5	2JTU5
16	20	2	2JTY9	2JUD7	2JTU7
16	25	2	2JTZ2	2JUD9	2JTU9
18	24	2	2JTZ4	2JUF2	2JTV2
20	20	2	2JTZ6	2JUF4	2JTV4
20	24	2	2JTZ8	2JUF6	2JTV6
20	25	2	2JUA1	2JUF8	2JTV8
24	24	2	2GJE4	2JTD2	2JTW1
25	25	2	2JUA3	2JUH1	2JTW3

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FP GAS PHASE

- Improve indoor air quality through effective removal of contaminants, odors and gases
- Available with activated carbon for adsorption, potassium permanganate for chemisorption, or a 50/50 blend of both
- 100% fill for maximum single pass efficiency and longer service life

DESCRIPTION

The Air Handler FP Gas Phase filter is designed to remove a wide range of odors and common indoor air pollutants at high air flows. Constructed of heavy-duty galvanized steel and plastic, with 3/4" honeycomb media packs, the FP Gas Phase filter can be willed with one of two media or a blend of the two to fit any application.

BENEFITS

The FP Gas Phase filter provides effective odor removal with just a moderate increase in pressure drop.

Using 60% CTC activated carbon, potassium permanganate on zeolite, or a blend of the two, the FP Gas Phase filter removes a broad spectrum of compounds including Volatile Organic Compounds (VOC's), vehicle exhaust, sulfur compounds, ammonia and formaldehyde.

APPLICATIONS

These filters are used in commercial and industrial applications when odors and gases need to be removed to protect people, processes, equipment or artifacts.

With a standard header, it can be used in existing HVAC systems, easily retrofitted or specified for new construction. The dual direction design allows for a front or reverse mount installation, without a reduction in filter performance.

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FP GAS PHASE

DIMENSIONS & PERFORMANCE DATA

ACTIVATED CARBON (100%)			
Contaminants Removed by Activated Carbon			
Acetone	Gasoline	Naphtha	Perchloroethylene
Nitrobenzene	Pyridine	Chlorobenzene	Methyl Chloroform
Chloroform	Paint Fumes	Toluene	Methyl Ethyl Ketone
Benzene	Ozone	Styrene	Methylene Chloride

H	W	D	Initial Resistance @ 500 FPM ("w.g.)	Media Weight	Shipping Weight	Grainger #
12	24	12	0.51	11	16	2GGY7
20	24	12	0.51	20	27	2GGZ2
24	24	12	0.51	32	32	2GGV7

POTASSIUM PERMANGANATE (100%)			
Contaminants Removed by Potassium Permanganate Impregnated Media			
Acetylene	Amines	Mercaptans	Nitrogen Oxides
Alcohols	Ammonia	Sulfur Oxides	

H	W	D	Initial Resistance @ 500 FPM ("w.g.)	Media Weight	Shipping Weight	Grainger #
12	24	12	0.36	14	19	2GHA1
20	24	12	0.36	26	33	2GHA5
24	24	12	0.36	32	40	2GHA9

ACTIVATED CARBON / POTASSIUM PERMANGANATE BLEND (100%)			
Contaminants Removed by Activated Carbon / Potassium Permanganate Blend			
Acetic Acid	Cooking Odors	Butyric Acid	Chlorine Dioxide
Urea	Chlorine	Isoproanol	Sodium Thiosulfate
Trichloroethylene	Auto Exhaust	Tobacco Smoke	Cleaning Compounds
Animal Odors	Diesel Fumes		

H	W	D	Initial Resistance @ 500 FPM ("w.g.)	Media Weight	Shipping Weight	Grainger #
12	24	12	0.36	13	18	2GGY3
20	24	12	0.36	23	30	2GGZ6
24	24	12	0.36	28	37	2GGX8

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NESHAP / EPA METHOD 319

The EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP) mandated that a new filtration test method be established to determine the efficiency of a filter to remove hazardous pollutants from paint overspray. The EPA guidelines went into effect on September 1, 1998 and continue to set the standard for paint overspray collection systems today. The test method to determine compliance is Test Method 319.

PREFERRED 1ST STAGE

PAINT FILTER PAD

Paint Filter Pad, Polyester media with ECXL style. The media is multilayered, with finer fiber structures downstream in order to enhance depth loading capacity. The multiple layers will avoid face loading as it captures overspray paint with a downstream tackifier.

APPROVED 2-STAGE SYSTEM

2 POCKET BAG FILTER

The recommended 2-stage system consists of a prefilter paint arrestor pad followed by a two pocket bag filter. This two pocket bag filter exceeds the approved EPA Method 319 testing requirements with or without the prefilter pad. The 2-pocket filter is self-sealing and has self supporting pockets. The Media construction is a multi-layered gradient density structure to maximize paint collection and retention.

APPROVED 3-STAGE SYSTEM

5 POCKET BAG FILTER

The recommended 3-stage system consists of a prefilter pad, a 2 pocket filter bag, followed by the EPA Method 319 approved 5 pocket bag filter. The 5 pocket bag filter is self sealing and exceeds the testing requirements with or without the pre-filter pad and two pocket filter bag. The media construction is multi-layered with the downstream layer consisting of a high efficiency synthetic media.

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NESHAP / EPA METHOD 319

DIMENSIONS & PART #S

Nominal Size (in.)			2-Pocket Bag
H	W	D	Grainger #
20	20	15	4YKR4
20	25	15	4YKR5
24	24	15	4YKR6

Nominal Size (in.)			5-Pocket Bag
H	W	D	Grainger #
20	20	12	4YKR1
20	25	12	4YKR2
24	24	12	4YKR3

PERFORMANCE COMPARISON 2-STAGE FILTER

Liquid Challenge - Oleic Acid			
Particle Size	EPA 319 Requirement	Air Handler Actual	ATI Actual
>2.2um	>10%	55.40%	41%
>4.1um	>50%	81.30%	87%
>5.7um	>90%	92.40%	96%

Solid Challenge - KCl			
Particle Size	EPA 319 Requirement	Air Handler Actual	ATI Actual
>2.2um	>10%	55.40%	41%
>4.1um	>50%	81.30%	87%
>5.7um	>90%	92.40%	96%

Initial dP @ 120 FPM Air Handler - 0.045”

Initial dP @ 120 FPM ATI - 0.13”

PERFORMANCE COMPARISON 3-STAGE FILTER

Liquid Challenge - Oleic Acid			
Particle Size	EPA 319 Requirement	Air Handler Actual	ATI Actual
>0.42um	>65%	83.50%	75%
>1.0um	>80%	95.00%	87%
>2.0um	>95%	99.10%	99%

Solid Challenge - KCl			
Particle Size	EPA 319 Requirement	Air Handler Actual	ATI Actual
>0.70um	>75%	93.80%	88%
>1.1um	>85%	97.80%	92%
>2.5um	>95%	99.50%	98%

Initial dP @ 120 FPM Air Handler - 0.22”

Initial dP @ 120 FPM ATI - 0.28”

The lower initial dP results in longer life and lower operating costs.

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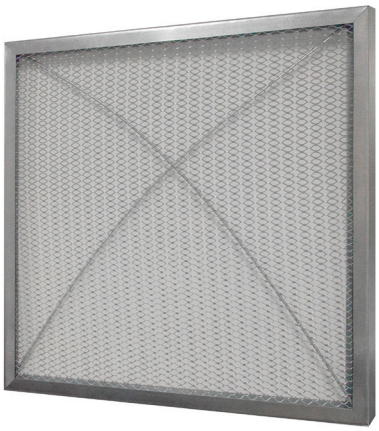
FILTER ACCESSORIES

PAD HOLDING FRAMES

Air Handler Pad Holding Frames are reusable. Permanent pad holding frames are constructed around a 24-gauge steel frame. The downstream side is 16-gauge, 1" x 1" welded wire. A hinged gate makes changing the pad easy, quick and safe.



DIMENSIONS & PART #S

H	W	D	Grainger #
10	10	1	6B730
10	20	1	6B729
12	12	1	5W082
12	20	1	6B727
12	24	1	5W081
14	20	1	6B725
14	25	1	6B723
15	20	1	6B721
16	16	1	6B719
16	20	1	5W080
16	24	1	6B718
16	25	1	5W079
18	18	1	5W078
18	20	1	6B716
18	24	1	5W077
18	25	1	6B714
20	20	1	5W076
20	24	1	6B713

H	W	D	Grainger #
20	25	1	5W075
22	22	1	5W074
24	24	1	5W073
25	25	1	5W083
10	20	2	6B728
12	24	2	6B726
14	20	2	6B724
14	25	2	6B722
15	20	2	6B720
16	20	2	5W072
16	24	2	6B717
16	25	2	5W071
18	24	2	6B715
20	20	2	5W070
20	24	2	6B712
20	25	2	5W069
24	24	2	6B711
25	25	2	6B710

AIR FILTER HOLDING FRAMES

Air Handler Filter Holding Frames are used to construct "built-from-scratch" filter banks for air handling systems. They may be bolted or riveted together utilizing matching holes on frames. Combined with a variety of holding clips, they can accept most 1", 2", 4", 6" and 12" supported filters and non-supporting pocket filters.

H	W	D	Case Qty.	Grainger #
24	24	3	8	6B731
20	24	3	8	6B732
12	24	3	8	6B733

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FILTER ACCESSORIES

GASKETING FOR AIR FILTERS

Air Handler Filter Gasketing consists of black neoprene foam construction with adhesive backing. Excellent resistant to chemicals, maximum temperature of 220°F. Used to seal filters and avoid air by-pass.

DIMENSIONS & PART #S

W	L	D	Grainger #
13/16"	75'	1/8"	6C523
13/16"	50'	1/4"	6C524

FILTER HOLDING CLIPS

Air Handler Filter Holding Clips keep all types of air filters firmly fastened within frames. Install using hand tools only - no rivets or bolts necessary. See chart below to match air filter to proper clip.

All pigtail clips are galvanized steel and all spring clips are stainless steel.

Case quantity equals 12

DIMENSIONS & PART #S

Clip Style	To Hold	No. Required	Grainger #
1" Pigtail	1" Header	4	5E904
2" Pigtail	2" Filter	2	5E905
3" Pigtail	2" Prefilter to a filter w/ header	4	5E906
4" Pigtail	4" Filter	4	5E907
6" Spring	6" Rigid or Box	4	5E908
12" Spring	12" Rigid or Box	4	5E909

Pigtail Clip

Spring Clip

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ODOR CONTROL

An effective odor control system is a critical piece of any type of marijuana growing operation. Regardless of size or complexity, escaping odors must be treated and neutralized before reaching public areas creating community concerns and complaints. Since ventilation is a key ingredient to plant health, the pungent odor from different strains can be smelled for miles without some form of odor control.

Fogco's diverse line of high pressure products allows for a customized odor system to be designed for a variety of applications. When combining an injector with the high pressure fog system, a neutralizing agent can be introduced which will control and eliminate the odor rather than merely masking it. This technology has been effectively used for years to eliminate odor concerns in industrial markets such as sewage facilities, garbage transfer stations, farming, etc.

Better Control. Better Results.

Fogco Systems, Inc.
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SUBTRACTIVE ODOR CONTROL™

ODOR-ARMOR® 420

Many products, like masking agents, designed to control malodors using fragrances added to the air to overwhelm the malodor, actually ADD to the intensity of the malodor – additive masking technology. Many times the result is a fragrant version of the malodor AND a higher level of odor intensity.

The principle is simple…

Masking agents are additive ++++++++++++++++++ **Odor intensity is increased**

Benzaco Scientific **Subtractive Odor Control™** makes additive masking technologies obsolete. By using scientific odor neutralization concepts developed over the last 20 years, Benzaco Scientific is able to dramatically reduce or eliminate malodors completely.

Benzaco Scientific uses selected essential oils, intimately dispersed with the malodor in vapor phase delivery and through a combined process of chemical reaction, odor opposites (antagonistic pairs), absorption and adsorption, and pluralistic effects, the odor is neutralized and eliminated.

ODOR-ARMOR® 420 is subtractive---------- *Odor intensity is decreased*

Basically, Benzaco Scientific changes the way one smells the odor. The shape of the odor molecule triggers odor perception. Odor molecules solubilize in mucous in the nasal cavities. The solubilized molecule attaches to a protein in one of millions of olfactory sensory receptors. This combined protein/molecule triggers a signal to the olfactory bulb, which acts like a switching station, sending signals to the brain. These signals are received by various areas of the brain including the temporal lobe, which houses memory. Memory plays a very significant role in odor perception. Smells are remembered, and emotions are triggered by them.

Benzaco Scientific chemists use a number of techniques to modify malodors:

1. Modify the shape (chemical structure) of the odor molecule BEFORE it reaches the nose.
2. Modify the number and intensity of the triggering molecules reaching the nose.
3. Modify the perception of the odor.

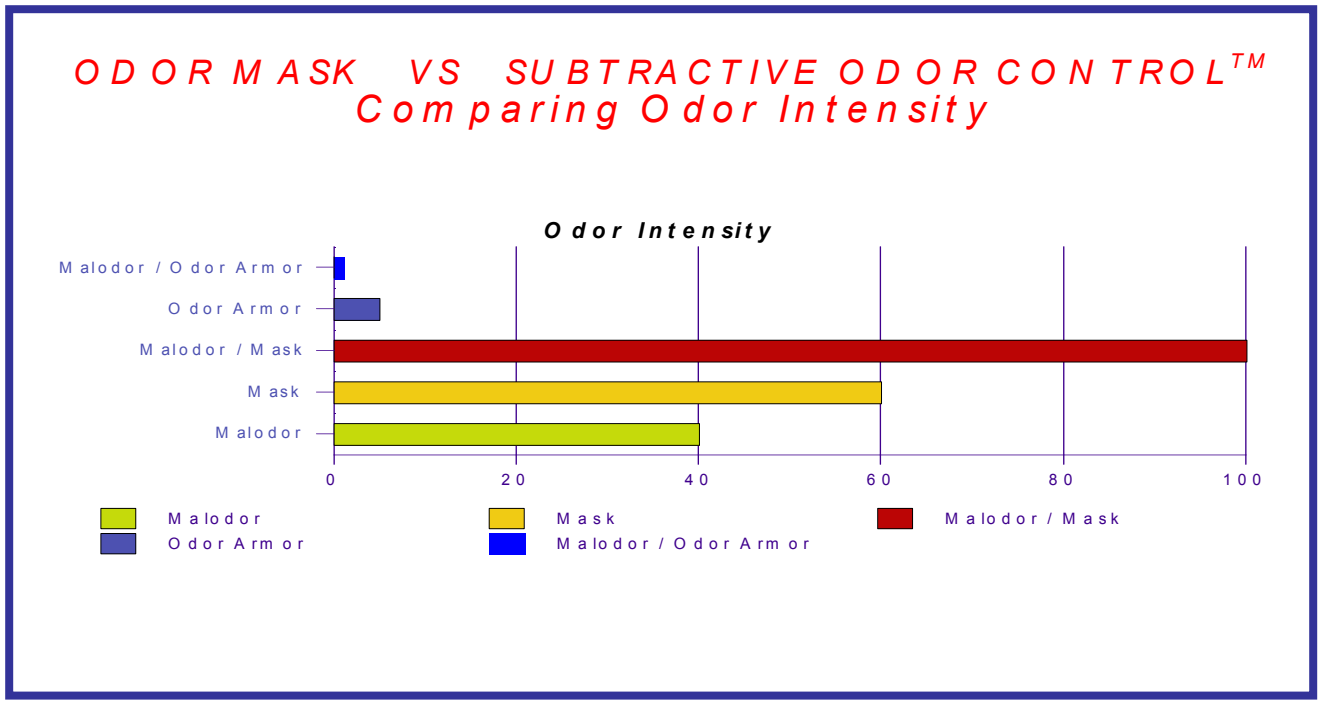
The chemical reactions between the molecules of malodour and the odor neutralizer creates a different molecule. If the new molecule reaches the nose, a different mechanism is triggered. Often, the reactions are catalyzed by other malodour molecules like hydrogen sulfide.

By selecting odor molecules which trigger an opposite signal to the malodor, both odors are cancelled. This effect known as antagonistic pairs or odor opposites, has been well studied and documented. The concept is used everyday in restaurants when lemon or orange is applied to cooked fish in order to negate the strong amine odors that can emanate. Antagonistic pairs exist, that work well outside of 1 to 1 stoichiometric chemistry. Benzaco Scientific chemists have discovered many odor opposites that work at a fraction of the level of the malodor they neutralize.

By correctly applying vapor phase technology, Benzaco Scientific is also able to take advantage of certain essential oils that solubilize (absorb) malodorous molecules, thus reducing the opportunity for these molecules to reach the sensory cells. Adsorption, a surface phenomena where molecules attach with a temporary electrical bond which in effect changes the shape of the molecules reaching odor receptors, is also used. Finally, many malodors have a dualistic or pluralistic effect. They are only malodorous when present at certain concentrations but when reduced in level, actually take on an acceptable odor.

Benzaco Scientific has many operational sites in the United States using Subtractive Odor Control™ Technology. The results are impressive. Analysis of air samples before and after treatment show reductions in odor intensity of 90% plus. Comparative tests on other vapor phase odor control technologies showed reductions of 40 to 60%

Benzaco Science chemists and engineers have combined to make Subtractive Odor Control™ an extremely effective method of odor management for the cannabis-growing industry. The right chemistry and the right engineering make the difference between unsatisfactory odor masking and complete odor reduction. Benzaco Scientific Subtractive Odor Control™ - tested and proven for over 20 years.



For more information on Benzaco Scientific engineered solutions for odor control, visit our website www.benzaco.com or contact your Benzaco Scientific Sales Representative, Rick O'Sadnick at 202.258.4777 or rick@benzaco.com.

ODOR-ARMOR® 420

Case Study—Colorado Cannabis Grow Facility

COLORADO CANNABIS GROW FACILITY SAVED FROM LICENSE REVOKE BY IMPLEMENTING AN ODOR-ARMOR® 420 ODOR MANAGEMENT PLAN

The Problem

A licensed cannabis grow facility in the mountains of Colorado recently was saved from the imminent inevitability of being shut-down for persistent nuisance odor complaints from the neighbors. Although the owner had previously installed high-pressure fogging nozzles to treat odors from the greenhouse exhaust fans, complaints began to flood in...threatening the continued existence of the business.

The Objective

For the purpose of optimizing the existing odor control system to operate as it completely should, a thorough review of the system was conducted including:

- Nozzle placement
- Cross-wind affects
- Choice of odor counteractant,
- Feed-rate of the counteractant, and
- Contact-time of the counteractant with the cannabis odors.

The Study

It was determined that Odor-Armor® 420 should be used to treat the nuisance odors. Odor-Armor® 420 was specifically formulated to counteract the esters, terpenoids and reduced sulfur compounds found in nuisance marijuana odor. In order to demonstrate the efficacy and performance, an independent, third-party environmental consultant was brought in to conduct a three-day odor survey. The purpose: measure strength and characteristics of nuisance odors at the property line and the surrounding community utilizing Nasal Ranger® technology.

The Nasal Ranger® is a state-of-the-art portable, field olfactometer for confidently measuring and quantifying odor strength in the ambient air. Since the detection of odors are mostly subjective in nature, this devise provides odor detecting and measuring values which determines ambient odor “Dilution-to-Threshold” (D/T) values objectively.

Continued on other side

ODOR-ARMOR® 420

Case Study—Colorado Cannabis Grow Facility (Pg. 2)

The Solution

With a cooperative effort from both Fogco Systems and Benzaco Scientific, engineers designed and constructed diversion hoods over each greenhouse exhaust fan to minimize the affect of the strong cross-winds blowing across the fans. The hoods increased the contact time between the Odor-Armor® 420 and the cannabis odor. As a result, the subsequent odor mapping from the Nasal Ranger testing demonstrated “no discernable marijuana odor” at neither the facility property boundary, nor in the surrounding community.

The Results

Despite being initially skeptical, both site personnel and the neighbors were significantly impressed and convinced. Because the growing facility implemented an Odor-Armor® 420 odor mitigation program, odor complaints have dropped off from over 30 per month to less than 2 per year. And more importantly, this particular site narrowly escaped being shut-down for odor complaints. Key neighbors who were initially in strong opposition to the cannabis operation had now written and submitted letters of support to the judge, encouraging a permit renewal. The use of Odor-Armor® 420, the Nasal Ranger® data, and the community letters of support were all enough to convince the hearing judge to rule:

“Permit Granted”

St. Croix Sensory, Inc.

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F: 651-439-1065

www.fivesenses.com

15 May 2017

Dana Pack
Fogco Systems, Inc.
600 S 56th St.
Chandler, AZ 85226

Re: Fogco-Benzaco Odor Management of Marijuana Grow Facility Air Emissions

On April 6, 2017, St. Croix Sensory evaluated the efficacy of a high-pressure, hose-and-nozzle, water fogging odor management system at CW Nevada medical marijuana grow facility in Pahrump, Nevada.

For more than 35 years, St. Croix Sensory staff has been assisting facility owners, consulting engineering firms, and regulatory agencies quantify odors from a variety of industrial, agricultural, and municipal operations, including wastewater treatment, landfills, composting, and manufacturing in both field and laboratory settings. St. Croix Sensory manufactures and markets state-of-the-art odor sampling and measurement equipment. Our "ODOR SCHOOL"® is an internationally recognized program to prepare inspectors to conduct field evaluations of ambient odors. We are dedicated to providing and maintaining the highest standard of quality for all laboratory services and manufactured products. St. Croix Sensory maintains a professional practice that continually reviews ASTM International, CEN (European), and ISO Methods. Our quality control practices ensure quality is met from receiving of materials and sample to the finished products and final reports delivered to our customers.

The purpose of this study was to evaluate the efficacy of an odor management system provided by Fogco Systems, Inc. (of Chandler, AZ) utilizing an odor counteractant specifically formulated for cannabis growing operations by Benzaco Scientific, Inc. (ODOR-ARMOR 420®). Three screened and trained assessors performed as an odor judge tribunal to evaluate at the fence line the untreated and treated air emissions from the grow facility. The evaluation protocol accommodated the guidelines of ASTM E1593 Standard Guide for Assessing the Efficacy of Air Care Products in Reducing the Perception of Indoor Malodor. The growing facility's almost continuous exhaust fans created the desirable "actual" conditions downwind at the facility fence line to be compliant with the ASTM 1593 scope for quantitative odor assessment in determining efficacy.

The odor tribunal unanimously agreed the treated air emissions with the Fogco System utilizing the Benzaco ODOR-ARMOR 420® odor counteractant product demonstrated "no discernible odor" at the fence line downwind of the facility continuous exhausts. Prior to the Fogco/Benzaco treatment, the ambient air at the fence line downwind of the CW Nevada facility presented as pungent, earthy, and marijuana-weed-like. The odor tribunal reported a consensus, "the marijuana odor disappeared when the fogging system was operating".

Downwind of the CW facility, from 1/8 to 1-mile on public access roadways, the ambient air was without a discernible odor. On the day of the evaluations, 4/6/2017, the weather conditions were dry (20% relative humidity), mostly sunny (60-deg F) with wind direction at the CW facility in Pahrump, NV was from the south at moderate wind speeds of 10-mph.

The Fogco System appeared to create a uniform evaporating fog-mist with no free-water droplets observed in the air, nor upon the immediate ground area. The Benzaco Scientific odor counteractant, when observed close to the immediate fog-mist, did not appear to have a strong, specific top-note fragrance, other than slightly floral and/or sweet.

The evaluation of the Fogco high-pressure fogging system, treating the exhaust air with Benzaco's ODOR-ARMOR 420® at the Pahrump, Nevada, CW Nevada marijuana grow facility demonstrated efficacy-effectiveness in treating the facilities air emissions, yielding "no discernible marijuana odor".

Respectively submitted,

Charles McGinley
Technical Director
St. Croix Sensory, Inc.

Section 2 Cultural Resources

2.1 PURPOSE

The Cultural Resources Plan (CRP) is intended to protect the cultural, historical, archaeological, and paleontological resources on the lot of record where the permitted activity is located.

In-line with the goals of Lake County, the applicant CRP includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported or available upon request.

2.2 SCOPE

The applicant focuses on the following: Description of the procedure if cultural, historical, archaeological, or paleontological resources are found on property. All employees are required to follow the procedures outlined in this plan. Any deviations from this plan must be immediately brought to the attention of applicant and/or their manager.

2.3 OVERVIEW

In December of 2019, a pre-application meeting regarding the project parcels (area to be disturbed, development, improved, ect) was completed with the County of Lake Planning Department. During the meeting, requirements for the cultivation of cannabis including an overview of the entire process was conducted, including the process of tribal notifications.

2.4 IF CULTURAL RESOURCES ARE DISCOVERED (BMPS)

All activities will be temporarily ceased;

- Contact will be made with qualified archaeologist
- Adhere to all recommendations in the Archaeologist Report .

The applicant does not expect any expansion to the cultivation site; however, before any expansion of current site or development of property is commenced, the applicant would obtain all the necessary permits and conducts all required studies.

Section 3 Energy Usage

PURPOSE

The applicant has identified energy management strategies and technology that will reduce the carbon footprint generated from the cultivation of cannabis. The purpose of the Energy Management Plan (EMP) is to outline objectives and goals for the applicant to achieve and identify key strategies and operational procedures that will reduce energy use and consumption.

The applicant Energy Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local agencies.

3.1 SCOPE

The applicant Energy Management Plan focuses on the following:

- Monitoring of energy consumption;
- Establishing a benchmark for performance and efficiency;
- Setting goals for alternative energy and reduction of energy

3.2 OVERVIEW

The EMP applies to all operations performed at the cultivation site and that consume energy resources. This includes the usage of all machinery used during the cultivation process cannabis.

The primary goal and objective for the EMP is to establish reliable baseline metrics and benchmark standards for the performance and efficiency of cultivation site. The Energy Management Plan will track the consumption of:

- Electricity;
- Gasoline and Diesel Fuel;
- All employees are required to follow the procedures outlined in this plan. Any deviations from this plan must be immediately brought to the attention of applicant(s) and project managers.
- Use enegry saving cultivation lights

3.6 ENERGY CALCULATION

The following is energy calculation for the proposed permits:

PG&E/Solar energy calculations are to be determined. The proposed use will tie into the PGE grid by obtaining the necessary Federal, State and local agency permits to operate the use. Additional off grid solar may be used to help reduce the amount of energy used, such as to power the well pump, indoor cultivation lights and security cameras.

3.6 ENERGY (BMPS)

The applicant will implement the following best management practices:

- Provide employees with guidelines for efficient practices;

- Minimize use and turn off lights and unnecessary electronics;
- Conduct annual employee energy efficiency training;
- Use energy efficiency features in all technology;
- Aim for new construction to be net zero energy;
- Non-peak use of pumps, motors, and other energy sources;
- Build shading for buildings and other facilities to reduce load;

ENERGY MANAGEMENT (BMPs) To develop and implement an effective Energy Management Plan, the applicant will:

- Have an energy assessment conducted by service providers;
- Log and maintain solar usage for five years;
- Log and maintain fuel consumption annually;
- Establish goals for energy conservation;
- Maintain accurate recordkeeping as to the cultivation/production;
- Make records and all data available;
- Adjust strategies as needed to meet energy conservation goals

ALTERNATIVE ENERGY

The proposed use will install a panel solar array at its grow site. The applicant intends to operate at zero sum for energy immediately.

3.7 MONITORING AND BENCHMARKING PERFORMANCE OF EMP

The applicant is committed to benchmarking and reducing energy consumption relative to the site's expansion and annual consumption goals. To set a benchmark, analysis will be performed on the following:

- Machinery required for the cultivation of and their efficiency;
- Energy saving alternatives to machinery;
- Operational procedures

3.8 REPORTING PERFORMANCE OF EMP

The result of energy monitoring readings shall be recorded on standard monitoring data forms. All data and information will be reported to Lake County Community Development (CCD; and other interested licensing or regulatory agencies.

Section 4 Fertilizer Usage

PURPOSE

The Fertilizer Management Plan (FMP) provides guidelines forthe application of fertilizers, storage of fertilizers during the cultivation and employee training.

The Fertilizer Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local agencies.

4.1 SCOPE

The Fertilizer Management Plan focuses the following:

- Proper application and consideration of amount applied;
- The timing of applications based on seasonal and climatic conditions and the growth stage of the cannabis crop;
- Proper storage of fertilizers;
- Proper response to fertilizer spills and cleanup.
- All employees are required to follow the procedures outlined in this plan. Any deviations from this plan must be immediately brought to the attention of the applicant(s) and project managers.

4.2 OVERVIEW

The proposed use approaches soil fertility from an organic and biological perspective. The farm shall use only organic omri listed fertilizers and compost teas. Biologically active soil optimizes plant health, reduces the need for fertilizers, increases plants abilities to fight insect infestation, and reduces irrigation rates overall. The proposed use will require good biologically active compost, and extracts made from compost as the basis for our fertility program. Compostbuilds healthy soil over time, increasing the infiltration rates of rainwater, and exists in a stable form that produces little runoff. Along with compost, annual soil testing gives a complete view of the mineral balance of the soil. Amendments are added in the spring to adjust mineral balance forthe growing season. To limit infiltration and water quality degradation, The proposed use will irrigate and apply fertilizer consistent with the proper agronomic rate. All application will be at rates that are reasonable for crop, soil, climate, special local situations, management system and type of fertilizer. Fertilizers are stored in the storage sheds on the property within the square foot sheds. Covered stations, with appropriate side protection are also located in the cultivation areas for fertilizers that are in constant use. Fertilizers are applied per labels and applied at agronomic rates. Applicant will follow the pesticide use protocols as stated above for fertilizer applications. Reactive fertilizers are stored separately from pesticides or other reactive chemicals. Material safety data sheets (MSDS) are properly posted in all storage areas and at cultivation sites.

All fertilizers will be stored in their original package and may only be used in strict accordance with the product label requirements including, but not limited to directions pertaining to application, storage and disposal of the fertilizer product. Data safety sheets for all fertilizers will be maintained always.

4.3 FERTILIZER APPLICATION (BMPS)

The following are best management practices used in application:

- Plant cover crop to boost soil fertility and protect from storm events;
- Follow the manufacturer's suggested application rates;
- Contain any spills immediately;
- Prevent off-site drift with hedges or fencing;
- Do not spray directly on surface water to allow fertilizers to
- Drift to surface water spray only when wind is blowing
- Away from surface water;
- Install buffer strips, bio-swales, or vegetation downslope of cultivation site to filter runoff of chemicals from irrigation;
- Implement Integrated Pest Management practices to avoid the need for pest control;
- The use of fertilizer shall not occur within 100 feet of any spring, top of bank of any creek or seasonal stream, edge of lake, delineated wetland or vernal pool.

4.4 FERTILIZER STORAGE (BMPS)

The following are best management practices used in storage:

- Ensure fertilizers are properly labeled and stored to avoid contamination through erosion, leakage, or inadvertent damage from rodents, pests, or wildlife;
- Establish and use a separate storage area for fertilizers;
- Ensure all such storage areas shall comply with the riparian setback requirements, be in a secured location in compliance with label instructions, be located outside of areas of known slope instability, and be protected from accidental ignition, weather, and wildlife;
- Ensure storage areas have appropriate secondary containment structures to protect water quality and prevent spillage, mixing, discharge, or seepage;
- Store any chemicals in a secure building or shed to prevent access by wildlife.
- Store all products that impact water quality in a manner that does not allow for runoff to surface waters;
- Segregate acids from bases; segregate inorganic oxidizing acids (e.g. nitric acid) from organic acids (e.g. acetic acid), flammables, and combustibles;

- Segregate acids from water reactive metals such as sodium, potassium, and magnesium;
- Store corrosives on lower shelves at least below eye level and in compatible secondary containers, and will not store corrosives on metal shelves;
- Store dry powder and granular fertilizers in moisture-proof plastic tubs or containers

The proposed use will maintain an accurate log of all fertilizers to be used for the cultivation of cannabis. The log will detail the date, fertilizer type, amounts applied, method, the operator applying, and any additional inputs or amendments to the soil.

4.5 EVALUATING PERFORMANCE OF FMP

We will evaluate the yields for each batch and harvest of cannabis cultivated against the fertilizer inputs, benchmarks will include:

- Overall dry flower yield per strain, per square foot of canopy;
- Potency for each batch of crop of cannabis cultivated;
- The quantity of amendments or additional inputs used during cultivation;
- Environmental conditions during the flowering phase of plant development;

4.6 EMPLOYEE TRAINING

The proposed use will ensure all employees and managers are trained to adhere to the following best management practices at the cultivation facility. Each employee will be trained on the following:

- Acute, chronic, and delayed effects of fertilizers;
- Routes by which fertilizers can be absorbed by the body;
- Emergency first aid for fertilizer overexposure;
- How to access emergency medical care;
- Decontamination procedures;
- Spill cleanup;
- Importance of showering with soap and warm water;
- Compliant use of fertilizers;
- How to use Personal Protective Equipment;
- Heat illness prevention, recognition, and first aid;
- Safety requirements and procedures for handling, storing, transporting and disposing;
- Warning against taking fertilizers and/or fertilizer containers home;
- Triple Rinsing;
- Proper disposal practices;

- All necessary personal protective equipment will be available, clean, and properly stored;
- Fertilizer application equipment shall be properly calibrated;
- Fertilizer wastes shall not be disposed of on the ground, into or near water, or into storm drains, or septic tanks;
- Fertilizer containers, including empties, will not be left unattended, handled, emptied, stored or disposed of in a way that would create a hazard for people animals including bees, food, feed, crops or property.

FERTILIZERS TO BE USED:

The proposed use will be certified organic. The facility will only amend the organic bulk soil.

Our Added Amendments to Soil:

- Worm Castings (3-5 Gallons Per Yard)
- Organic Bat Guano (12% Nitrogen, 12%Phosphorus, and 2.5% Potassium)
- Organic Granular Kelp (1.0% Nitrogen, 15% Phosphorus, and 2% Potassium)
- Organic Humus Soil (3-5 Gallons per Yard)
- Organic Fish Powder (15% Nitrogen, 0.5% Phosphorus, and 0.5% Potassium)
- Fish Bone Meal (4% Nitrogen, 17% Phosphorus, and 0% Potassium)
- Shrimp Meal (6% Nitrogen, 6% Phosphorus and Calcium, and 0% Potassium)

Tea Recipe - Actively Aerated Compost Tea (AACT):

- Worm Castings
- Humus
- Kelp Extract
- Fish Hydrolysate
- Liquid Humic Acid
- Endo Mycorrhizae

4.7 REVIEW

Th applicant or their project managers will review all procedures in the Fertilizer Management Plan once a year and will take action to ensure full compliance with local, state, and federal regulations that pertain to the usage of fertilizers.

Section 5 Fish and Wildlife Protection

5.1 PURPOSE

The Fish and Wildlife Plan has been designed to minimize any adverse impact on fish and wildlife and to ensure that the cultivation site and operations performed on site by the applicant, project managers and employees is in no way destructive to the local habitat.

5.2 SCOPE

The Fish and Wildlife Management (FWMP) plan focuses on:

- A description of fish and wildlife that live on, or seasonally inhabit the lot of record;
- A description of the habitats found on the lot of record;
- Description of the watershed found on the lot of record;
- Methods to minimize adverse impact on the fish and wildlife. All employees are required to follow the procedures outlined in this plan.

5.3 OVERVIEW

The parcel is approximately 180 acres of pasture land, forested land, and native brush land (all oak tree will remain) containing primarily valley oak and blue oak, with a small conifer component consisting of several mature grey pines and ponderosa pines, with an understory of oaks and pines and brush. We reduced impact to the environment and utilized the trees as fertilizer for the soil. Our erosion control methods consist of wattles, weed-free rice straw, rip rap rock in all drainage and rock check dams.

5.4 HABITATS ON LOT OF RECORD

The lot of record includes three prevailing habitattypes: (1) Woodland; (2) Mixed Riparian Forest, (3) Pasture.

HABITAT DESCRIPTION FOR SUBJECT REAL PROPERTY

Woodland:

Woodland is a low-density forest forming open habitats with plenty of sunlight and limited shade. Woodlands may

support an understory of shrubs and herbaceous plants including grasses. Woodland may form a transition to shrubland under drier conditions or during early stages of primary or secondary succession.

Mixed Riparian Forest:

In mixed riparian forests, very tall oaks are less common, and the frequency of sapling oaks is higher. A mid story canopy of medium sized trees and tall shrubs such as sycamores and box layer is present in mixed riparian forests, composed contains a greater proportion of smaller shrubs than is present in Valley oak elder. The understory woodlands.

Pasture:

Existing pasture land has been utilized for cattle operations since the late 1800's. County maps show approximately 40 plus acres of usable pasture land with a biological survey completed by Northwest Bio survey.

5.5 WATERSHED DESCRIPTION

The land is located in the Cole Creek Watershed. McIntire Creek flows to Cole Creek on the north (opposite) side of the property and has sustained farming operations since the 1 800's. The cultivation site is greater than 150 feet from the water courses on the property and will use BMP's to protect all water courses/watersheds.

5.6 IMPACT MITIGATION STRATEGIES

The facility will use the following strategies to maintain our current standing and minimize any future impact onfish and wildlife:

- Be aware of wildlife mating, nesting and migration patterns on property and schedule any construction projects accordingly;
- Survey the areas of impact no more than three days prior to impact or removal;
- If work is to be conducted within the breeding season for nesting, a nesting bird survey should take place at least once before any vegetation disturbance or removal take place;
- Protect any active nests with a 50 to 100-foot buffer (species dependent) or exclusion area until the nest is no longer active;
- Perform fueling and maintenance of vehicles and equipment where absorbent spills and clean-up materials as well as spill kits are available, and such materials should be disposed of properly after use;
- The facility shall not disturb aquatic or riparian habitats, such as pools, spawning sites, large wood, or shading vegetation, unless authorized under a CWA section 404 permit, CWA section 401 certification, Regional Water Board WDRs (when applicable), or a CDFW LSA Agreement;

- The facility shall maintain existing, naturally occurring, riparian vegetative cover (e.g., trees, shrubs, and grasses) in aquatic habitat areas to the maximum extent possible to maintain riparian areas for

stream bank stabilization, erosion control, stream shading and temperature control, sediment and chemical filtration, aquatic life support, wildlife support, and to minimize waste discharge

5.7 EVALUATING PERFORMANCE OF FWMP

To evaluate the effectiveness of the FWMP, the applicant, project managers and employee will monitor and log water quality monthly, and perform a biological assessment of the property every two years or in the case of site expansion. Biological assessment reports and water quality logs will determine if conservation strategies are successful or if changes needed to be applied. Professional services will be rendered for biological assessments if necessary.

5.8 REPORTING PERFORMANCE OF FWMP

All data collected by the applicant, project managers/employees for the purposes of conservation will be shared and reported to Lake County officials, as well as to the appropriate agency if requested:

- California Department of Fish and Wildlife
- California State Water Resources Control Board
- California Division of Water Rights;
- The applicant and project managers will review all procedures in the Fish and Wildlife Plan once a year. In particular, to ensure full compliance with local, state and federal regulations that pertain to the conservation of the habitat and the species of wildlife it sustains. The applicant has received the following certification(s):
    - Enrolled in Tier 1 CA State waterboard certification.

Conservational targets, strategies and goals are with those that have been determined by the following conservational acts and programs, but not limited to as follows:

- California Endangered Species Act
- California Environmental Quality Act
- Clean Water Act
- CDFA's CalCannabis Cultivation Licensing Program
- State Water Board's Cannabis General Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities (Cannabis General Order) or any Waste Discharge Requirements addressing cannabis cultivation activities adopted by a Regional Water Quality Control Board (Regional Water Board)
- State Water Board's General Water Quality Certification for Cannabis Cultivation Activities (Cannabis General Water Quality Certification)
- State Water Board's Cannabis Small Irrigation Use Registration (Cannabis SIUR)
- State Water Board's Water Rights Permitting and Licensing Program. The following agencies and policies

were consulted in preparation of this Biological Assessment.

- California Department of Fish and Wildlife (CDFW)
- California Department of Forestry and Fire Protection (CALFIRE)

Section 6 Operations Manual

6.1 PURPOSE

The Operations Manua l is designed to outline the operating procedures of the commercia l cannabis cultivation site to ensure compliance with the use permit, protect the public health, safety and welfare, as well as the natural environment of Lake County.

6.2 SCOPE

The Operational Manual focuses on:

- Authorization for the County, its agents and employees to verify all information in the use permit
- A description of staff screening process
- Hours and day of operations
- Measures taken to minimize carbon footprint
- Chemicals stored and used on site.
- All employees are required to follow the procedures outlined in this plan.

6.3 AUTHORIZATION TO VERIFY

The applicant authorizes Lake County agents and employees to seek verification of the information contained within the development permit or use permit applications, the Operations Manual, and the Operating Standards at any time before or after development or use perm its are issued.

6.4 STAFF SCREENING

All employees will be required to submit fingerprints for a Live Scan criminal history search to be administered but the Lake County Sheriff's Department. Potential employee's must be approved by the LCSD to submit an application for employment. Prospective employees will be asked to submit a formal resume for review which includes education and work history, a statement as to why the employee would like to work for at this location, minimum of three professional references, and three personal references. Prospective employees whose applications and references have been approved will be granted a formal interview by the applicant and project managers. Meeting will include presentation on general job description, responsibilities, pay scale, schedule, operating procedures, and additional company benefits. Employees will be notified within seven business days as to whether they will be hired.

The applicant will use an online payroll platform or vendor such as PayChex, or Wurk which provides cannabis companies compliance support from the interview to paycheck and taxes. Additionally, applicant may pay all employee through company checks. We will use this system to track prospective employees, pay salaries; and save relevant information including background check results.

6.5 FACILITY OPERATION HOURS

Monday-Saturday 9am-7pm. Sunday 12-5pm. Facility will be open to authorized staff, deliveries, and pickups. Facility will be closed to the public.

6.6 FACILITY CARBON FOOTPRINT

The applicant recognizes that the most sustainable source of power is the sun, and is committed to growing 100% sun grown cannabis, with as little supplemental lighting as possible. Efforts will be made to minimize the use of fossil fuels through adaptation of green technologies, and equipment used that produce emissions will be regularly maintained and adhere to all applicable emissions standards.

6.7 CHEMICAL STORAGE AND EFFLUENT

The applicant uses Organic farming practices. Organic farming means that no chemical products are allowed for use in the cannabis facility, and no such chemicals will be stored on site. Nontoxic alternatives to conventional cleaning products and building materials will be sourced and used whenever possible. The facility may use small volumes of chemical sanitation products to maintain a sterile work environment inside the facility. These chemicals will be stored in the manner and location described in the Hazardous Waste Plan. No effluent is expected to be produced at the facility.

6.8 SITE MAINTENANCE PROTOCOL

When not in use, Farm equipment, will be stored in the proper designated area upon completion of the task required. Employees will conduct a daily scan of the site to ensure all materials used during the work day have been return to designated storage area in an organized fashion. Any refuse created during the work day will be placed in the proper waste disposal receptacle at the end of each shift, or at a minimum at the completion of the assigned task. Any refuse which poses a risk for contamination or personal injury shall be disposed of immediately. The applicant will allow grasses and cover crops to grow tall during the rainy season as a soil building technique, when spring seasonal work begins, site will be mowed and trimmed to ensure safe and sanitary working conditions.

Roads, parking areas, and yards shall be maintained at all times to prevent particulate generation and potential illicit discharges of storm water. Adequate drainage features will be installed at the time of construction and dirt surface will be maintained as needed. Rolling dips, out sloping and vegetated swales will be used as potential drainage features if the cultivate site shows signs of poor drainage. If swales are used, infiltration basins will be added to avoid storm water discharge.

The gradual slope of the proposed cultivation site makes it unlikely that the site will require specialized drainage features. Vegetated ground cover will be established over the entire site as soon as possible, and the site will be surrounded on all sides by a densely vegetated buffer strip capable of absorbing any sheet flow or runoff from the

site. If the site exhibits poor drainage, techniques mentioned above will be developed. If the site requires a waste water treatment facility, the facility will be designed, constructed, and maintained to ensure sanitary working conditions, eliminate the possibility of contamination, and protect working and consumer safety.

6.9 EVALUATING PERFORMANCE AND REPORTING OF THE OPERATIONS MANUAL REVIEW

The applicant and project managers will perform a weekly inspection of the cultivation site to ensure the guidelines of the Operations Manual are being carried out successfully, and the notes shall be logged in the Operations Manual, which is to be kept on site. Any poorly performing elements of the system or improper employee conduct will be corrected. If construction of drainage features or construction is required, all necessary permits and approvals will be acquired from the appropriate agency.

Section 7 Pest Management

PURPOSE

The Pest ManagementPlan (PMP) is designed to ensure that in the use of pesticides, they are used only after monitoring indicates they are needed and used with the goal of removing only the target organism, safely.

The Pest Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local agencies.

7.1 SCOPE

The Pest Management Plan focuses on the following:

- Pest prevention, deterrence and organic techniques;
- Employee training and safety;
- Storage of pesticides;
- Monitoring the effectiveness of the plan as well as reporting data to Lake County officials and the appropriate local agencies All employees are required to follow the procedures outlined in this plan.

7.2 OVERVIEW

SEE NEXT PAGE FOR DESCRIPTION

The operation does not use any chemical pesticides or herbicides. The operation employs an integrated pest management system that employs bio-pesticides and predator attractant plants to eliminate the need for conventional pesticides. If needed in the future, pesticides will be stored in storage sheds equipped with impermeable floor surfaces in secondary containment totes to prevent leaching into ground water or percolating to receiving waters. Approved spill proof containers with appropriate warning and information labels will be used to transport pesticides to and from cultivation areas. The operation will maintain and keep personal protective equipment required by the pesticide label in good working order. Coveralls will be washed after all use when required.

All required warning signs will be posted and material safety data sheets (MSDS) will be kept in the area where pesticides are stored. Emergency contact information in the event of pesticide poisoning shall also be posted at the work site including the name, address and telephone number of emergency medical care facilities. Change areas and decontamination rooms will be available off-site.

Before making a pesticide application, operators will evaluate equipment, weather conditions, and the property to be treated and surrounding areas to determine the likelihood of substantial drift or harm to non-target crops, contamination, or the creation of a health hazard.

In an event of a spill or leak, the contaminated soil will be stored, transported, and disposed of consistent with applicable local, state, and federal regulations

The operation does not use any chemical pesticides or herbicides. The operation employs an integrated pest management system that employs bio-pesticides and predator attractant plants to eliminate the need for conventional pesticides. If needed in the future, pesticides will be stored in storage sheds equipped with impermeable floor surfaces in secondary containment totes to prevent leaching into ground water or percolating to receiving waters. Approved spill proof containers with appropriate warning and information labels will be used to transport pesticides to and from cultivation areas. The operation will maintain and keep personal protective equipment required by the pesticide label in good working order. Coveralls will be washed after all use when required.

7.3 PEST DETERRENCE

The applicant will use the following practices and techniques to minimize pest infestations:

- Minimizing dust
- Releasing predatory mites
- Hanging yellow sticky cards.
- Removing any infested plant material
- The use of companion plants and other trap crops
- Using reflective mulches if necessary,

The applicant will use organic pesticides including but not limited to:

- Neem oil
- Horticultural oil
- Sulfur
- Insecticidal soaps

PESTICIDE USAGE (BMPs) In the case, all preferred methods of pesticide prevention and eradication have proven unsuccessful, the following are best management practices for pesticide use:

- Pesticides shall be applied only when pollinators are not present;
- Follow all labels and directions before, during and after the use of pesticides;
- Do not over apply pesticides;
- Pesticides are prepared and loaded on an impermeable pad at least 100 feet away from surface water bodies;
- Do not apply pesticides when pollinators are present;
- Do not spray directly into surface water and only spray when wind is blowing away from surface water bodies;
- When possible, use naturally insecticidal plants around or throughout a grow to repel a variety of flying insects and pests;
- The use of pesticides shall not be located within 100 feet of any spring, top of bank of any creek or seasonal stream, edge of lake, delineated wetland or vernal pool.
- If there is a spill or accidental discharge in or on any waters of the site, immediately notify the Office of Emergency Services so that the local health officer can decide what actions, if any, may need to be taken to protect public safety - HAZMAT SPILL NOTIFICATIONS 1 (800) 852-7550 or (916) 845-8911

7.4 WORKER PROTECTION (BMPS)

In the case of pesticide use, the applicant, project managers and employees shall follow the EPA's Agricultural Workers Protection Standard by:

- Providing protections to workers and handlers from potential pesticide exposure;
- Providing training on the safe use of pesticides;
- Providing training on how to avoid exposures to pesticides;
- Training to identify pesticides exposure symptoms and how to respond and manage exposures to pesticides if they occur

Section 8 Security

PURPOSE

The purpose of the Security Management Plan (SMP) is to minimize criminal activity, provide for safe and secure working environments, protect private property and prevent damage to the environment.

The Security Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local agencies.

8.1 SCOPE

The Security Management Plan focuses on the following: A description of security measures to prevent access to unauthorized personnel and protect employees including fences, sign-in/sign-out procedures, locks and alarms. A description of security measures to prevent theft or loss of cannabis and cannabis products.

All employees are required to follow the procedures outlined in this plan.

8.2 OVERVIEW

The Security Management Plan includes best management practices that have been established in the cannabis industry and that pertain specifically to the safe and secure operation of a cultivation site, as well as the secure storage of all cannabis and cannabis products.

The Security Management Plan is also compliant with the Emergency Regulations for Cannabis Cultivation, authored by CalCannabis, as well as the regulations established by the California Department of Public Health for state-licensed cannabis businesses.

The applicant will have security to minimize criminal activity, provide for safe and secure working environments, protect private property, and to prevent damage to the environment. The Applicant shall provide adequate security on the premises, as approved by the Sheriff and pursuant to this section, including lighting and alarms, to ensure the safety

of persons and to protect the premises from theft.

8.3 SECURITY (BMPS)

The driveway to the property has a locked gate at the entrance and there are other lockable gates at the site.

There will be no signage with the business name or signage that could otherwise be discerned by the public to indicate cannabis cultivation activities. The security camera system will record activities within the cultivation site and immediately outside of the site 24 hours per day, 7 days per week.

The security camera system will allow for remote monitoring and maintains records for 30 days minimum. All cultivation operations are performed within an enclosed site, secured with commercial grade locks. The site is located on a property with permanent residence and will be occupied by a designated employee daily and nightly.

8.4 ONSITE SECURITY

The Cultivation Site will be protected by an 8' wire perimeter fence, with cemented metal posts on 8' intervals. All terminal posts will be set in concrete. The site will be screened from public view by natural topography and vegetation that lines all major corridors. The cultivation area will not be visible. The entrance to the site will be secured by a metal gate and remained locked by a commercial lock, at all times when no staff is present.

The site will also feature a video monitoring system with full view of the cultivation area, infrared capability, motion sensors to alert management of intruders, and the ability to address potential intruders via loud speakers built into the video monitoring equipment.

8.5 SUSPICIONS ACTIVITY PROTOCOL

All suspicious activity will be recorded via security cameras. In the event that law enforcement if required, the designated project managers and employee will notify the Lake County Sheriff's Department, and other agencies as appropriate as quickly as possible. The designated employee will then file a suspicious activity report, noting the time and date of the activity and keep record in a secured room on site.

If suspicious activity could result in injury or death of employee or employees, all employees will be evacuated from the premise until activity is controlled or intruder is captured.

If the suspicious activity is believed to be from an employee the applicant and project managers will review all security tapes which record areas where suspicious activity may have occurred. If tapes show suspicious activity was perpetrated by an employee, the employee will be asked to leave the premise and relinquish badge and access to the property. If security personnel are necessary on site for the removal of the employee, they will be notified.

If suspicious activity is believed to be conducted by a visitor, designated employee(s) will review the tapes and notify the visitor of our findings. Depending on the severity of the activity, law enforcement will be notified and charges will be filed against the individual or party. The person or party will no longer be allowed on property.

Breach Procedures (BMPs): Property Breach: if an unauthorized individual gains access to the property, local law enforcement will be notified immediately. The applicant, project managers or the designated employee will determine if it is necessary to cease operations; and if necessary, notifications will be sent to all employees whom will enter nearest operational room and will lock doors and turn off lights; when determined safe, the applicant and project managers will notify all employees.

Digital Breach: The applicant and/or project managers will immediately assess any damages and losses incurred from the event and will determine an operational recovery timeline; and will investigate all digital records, data and systems to ensure that no cyber-theft or damage has occurred and investigate all cloud-based backups to ensure that no damage has occurred.

8.6 VISITOR LOG REQUIREMENTS

The applicant and project managers will maintain an employee and visitor arrival and departure log, which contains, the name of the visitor, date and time of arrival and departure, and the purpose of the visit. All logs will be kept in a secured office only accessible by the applicant and project managers only.

8.7 THEFT AND LOSS PREVENTION (BMPS)

All employees and visitors will be under video surveillance at all times. All cannabis will be stored in a locked, secure room, accessible only to farm management. Other anti-diversion methods include:

Supervising tasks or processes with high potential for diversion (including the loading and unloading of cannabis transportation vehicles). Providing designated areas in which personnel may store and access personal items. No visitors will be allowed to the facility, with the exception of local and state agency representatives authorized to act on their behalf. Only employees with scheduled shifts may enter the property; and each employee will be required to be been checked-in properly.

Additional surveillance cameras will, additionally, be installed in areas used for employee parking in or around the cultivation site. All employees will be trained to identify suspicious activity and suspect individuals loitering around the property.

Only the management team will be allowed to access the vault or storage for any harvested cannabis. Surveillance cameras will be installed throughout the secure storage areas, including each point of ingress/egress as to capture facial details, and allow for facial recognition as well as in all rooms where cannabis is handled.

All cannabis will be weighed, documented and logged at each stage of the processing phase, which includes drying, trimming and curing. Each plant and batch of cannabis cultivated will be properly tagged and assigned a unique identification number (UID). In addition to Track-and-Trace, an inventory tracking system will be established to prevent diversion. At the end of each day, the applicant, project managers and employees will inspect secured rooms and record inventory on a log. All in/outs of inventory will be recorded on a log, as well. These logs will be kept in secured room with extremely limited access.

EMPLOYEE VETTING – LOSS PREVENTION

The applicant, project managers and employees will conduct extensive background checks of all employees hired on a full- time or seasonal basis to ensure they are in good standing with the law and do not have a previous history of theft, violence or major offenses. All employees and managers are provided a badge or ID issued by applicant/project managers with required information to be worn when in restricted on areas on the farm, such as company's name/logo name and license numbers, employees first and last name, and a color 2 inch by 2-inch photograph that shows the employees face.

All employees must wear their approved Employee Photo ID Badge at all times while at the cultivation site. No access to operational areas of the facility will be allowed to any employee not in possession of or wearing their ID Badge. The badge must be worn above the waist and be visible at all times.

Any employee who forgets his/her badge should immediately notify a manager to have the shift rescheduled. Only the management team will be granted access to the secure storage rooms and secure storage vaults located on-site.

RESTRICTED AREAS – LOSS PREVENTION

The restricted areas include the cultivation site, the processing facilities, on-site office and any area with company records, access to security cameras or information related to the cultivation facility. All restricted areas and point of entry and exit on the premises are securely locked using commercial-grade locks.

The applicant, project managers and employees prevent the unauthorized entrance into restricted areas within the farm by controlling access to those areas by:

Limiting access to only certain personnel and for the sole purpose of executing their specific job function and duties.

Any person on the premises, except for employees and contractors of the licensee, are escorted at all times by the licensee or at least one employee of the licensee when in the limited-access areas of the premises.

CHAIN OF CUSTODY (BMPs) – LOSS PREVENTION

While in transit, raw materials and cannabis products are the most vulnerable. In particular, shipping, receiving and finalizing cannabis transactions present a security threat to cultivation facility.

The following practices, therefore, shall be employed:

- All shipments—incoming and/or outgoing—will occur on a scheduled basis. No unscheduled shipments will be received or sent out for delivery.
- The management team will verify the vendor's identity by requesting government-issued ID and checking

information against a manifest of vendor drivers. The managementteam will inform site supervisor that a vendor is present and escort the vendor into the facility. All shipments will take place in areas that are covered by video surveillance.

- All outgoing products will be tracked and documented using the Track-And- Trace system.
- All shipments will be verified against the shipping manifest to ensure the accuracy of the items received/being distributed - any discrepancy will result in a cancelled transaction.
- All discrepancies will be reported immediately to a member of the applicant and management team.
- All discrepancies are to be reported to the appropriate law enforcement, local and state agencies.
- In the case of any theft, applicant/project managers will notify the local law enforcement and/or the state bureau.

8.8 VIDEO SURVEILLANCE

The facility will be protected by a 1080 pixel video surveillance recording system that will monitor the entire perimeter and inside of the cultivation site, inside processing facility, the security fence, and all gates and right-of-ways in order to capture all activity in areas where cannabis is handled, tested, cured, processed or stored.

Surveillance will be conducted 24 hours a day, 365 days a year, without interruption. All video surveillance recordings will include a date and time stamp for every recorded frame and are designed to record images in high quality and high resolution to clearly capture revealing facial detail.

Video Surveillance: The site will have a complete digital video surveillance system capable at a minimum of 1080 pixel resolution. The surveillance-system storage device or the cameras are transmission control protocol/ TCP/capable of being accessed through the internet for remote access 24/7. All areas recorded by the video surveillance system have adequate lighting to allow the surveillance cameras to effectively record images.

Cameras are immobile and will be installed in a manner to prevent tampering Cameras are placed in a location that allows the camera to clearly record activity occurring within 20 or more feet of all points of entry and exit on the licensed premises and allows for the clear and certain identification of any person and activities in all areas required to be filmed under subsection.

The following areas are recorded:

- Areas where cannabis goods are weighed, packed, stored, quarantined, loaded and unloaded for transportation, prepared, or moved within the premises;
- Areas where cannabis is destroyed;
- Security rooms;
- Areas storing a surveillance-system storage device with at least one camera recording the access points to the secured surveillance recording area;

- Interiors and exteriors of all entry points of the site and buildings. Cameras record continuously 24 hours per day at 30 frames per second. All interior cameras (if any) will be moisture proof and all exterior cameras will be water- proof, I-66. Cameras with infrared capabilities will be used for the perimeter fencing;
- All cameras will include motion activated sensors. All cameras will have color capability, record digitally and be capable of integrating with door alarms.

In areas with inadequate lighting for the cameras being used, sufficient lighting shall be provided to illuminate the camera's field of vision or night or infrared cameras will be utilized. The physical media or storage device on which surveillance recordings is stored and is secured in a manner to protect the recording from tampering or theft. Surveillance recordings are kept for a minimum of 30 days and recordings will be kept in a secured room in a controlled environment, separate from the rooms where the computers and monitor system are located.

Videos will be available for inspection by local law enforcement or state bureau employee(s), and can be copied and sent or transferred upon request.

8.9 INFORMATION TECHNOLOGY SECURITY (BMPS)

The applicant and project managers have developed the following contingency measures to ensure the security of digital records and systems that are vital to the operation of the facility. In the event of flood, fire or theft, these contingencies will allow us to resume operations as soon as operationally possible. All digital records and systems that are vital to the use will be backed-up on a weekly basis. The data backup will be stored off-site, on a cloud-based server accessible only to management level employees.

Access to digital records and systems will be highly regulated. No visitors will be allowed in the secure storage areas, operational areas, or any area where digital recordkeeping takes place. Employees will be trained on the importance of maintaining the security of all digital records and systems and will be required to sign a form of acknowledgment testifying that they have been trained, understand and are aware of all digital security measures and all access control policies.

8.10 SECURITY PERSONNEL

If the applicant and management deem that outside security personnel are necessary, the applicant and project managers will engage a local security company for security personnel to provide security services on the premises when an emergency response is necessary. All security personnel hired or contracted by the applicant comply with Chapters 11.4 and 11.5 of Division 3 of the Business and Professions Code.

8.11 REVIEW

The applicant and project managers will commission an independent annual inspection to evaluate whether the installed equipment should be updated and to review maintenance routines.

Emergency Contact Personnel: *Greg Hanson (831) 212-2917; email benpahl78@gmail.com*

Section 9 Stormwater Management

9.1 PURPOSE

The purpose of the Storm Water Management Plan is to protect the water quality of the Lower Sacramento River Watershed and the storm water management systems managed by Lake County Department of Water Resources.

The Storm Water Management Plan includes measures to monitor and evaluate the performance of the plan, as well asensure that all data and information is reported to Lake County and the proper local agencies.

9.2 SCOPE

The Storm Water Management Plan focuses on the following: Protecting its all water bodies, waterways, wetland, etc. from water quality degradation from activities and uses associated with cannabis cultivation such as use of topsoil, fertilizer, etc. Additionally, will adhere to all requirements in the Biological Assessment, including all Federal, State and local agncies requirements, including Chapter 29 and 30 of the Lake County Code.

The Storm Water will not discharge to adjacent water bodies or properties. The applicant and project managers will be in compliance with the Lake County Storm Water Management Ordinance; and Grading Ordinance. The applicant sha ll utilize best management practices for construction and post-construction activities.

All employees are required to follow the procedures outlined in this plan.

9.3 OVERVIEW

The applicant prepared an outdoor cultivation site in the least possible impact area for storm water runoff. It is located in the same area where the less than 1 acre conversion was completed. All diffused storm-water is sloped to the southwest of the site. There is a primary and a secondary sediment trap. The primary sediment trap located to the south of the proposed cultivation site with rip rap rock, wattles, seed and straw surrounding it. The seed protects and stabilizes the soil, the straw slows the water and the wattles filter out any unwanted contaminants. The goal is to protect the diffused surface water in compliance with section 122.26 the storm-water system of Lake County.

The applicant recognizes that the protection of surface waters is paramount to the operation of an environmentally friendly cannabis farm. Surface contamination from roads is a problem in Lake County, and other rural communities.

The project property contains existing roads for the purpose of ingress and egress to the cultivation site. The storm water management plan will address some of the remaining smaller issues that may, under extreme precipitation events, results in distribution of sediment to waterways, to further address chronic issues associated with the existence of roads through best management practices; and to ensure that there is no risk of contamination via fertilizer or chemicals.

9.4 PROTECTING DOWNSTREAM WATER BODIES FROM WATER QUALITY DEGRADATION

The applicant and project managers will manage storm water by continuing to upgrade the road system, implement measures to prevent potential of contamination from fertilizers and chemicals, implement best management practices, and train personnel about best management practices and emergency waste discharge response.

9.5 TOPSOIL, FERTILIZERS, AND PESTICIDE RISKS

The cultivation site will include agricultural BMPs, as well as storm water BMPs that help create a healthy, and clean agricultural system. The implementation of an Integrated Pest Management creates an environment where pesticides, herbicides, and fungicides can usually be avoided and so these chemicals are not used on the farm. Not having them present is the first step in ensuring that they cannot contaminate any waterways. Well maintained biologically alive soils aid in plant nutrient uptake. All fertilizers applied are biologically based and organic in nature. Liquid fertilizer, the kind that is most likely to contaminate waterways, will not be used on site. With regard to top soil, the agricultural BMPs that insure it remains on site include, cover crops, 100% ground cover and mulches, and avoidance of mechanical compaction of the soil.

9.6 ILLIXIT NON-POINT SOURCE DISCHARGE WILL BE ELIMINATED

The applicant recognizes that the greatest risk of storm water discharge and potential sediment delivery to receiving waters is often from the dirt surfaced interior road system. The property road system will be maintained to reduce this risk. The applicant will ensure that drainage features on the existing roads are designed to avoid possible connection to receiving waters, and instead to discharge to wooded areas for infiltration. If necessary, water bars and rolling dips were installed at appropriate locations to slow the surface flow of storm water runoff, and reduce flow to any culverts located on the road system. The applicant will consider installing 4-6 inches of 1.25 diameter rock to the surface of the road system to further slow road runoff, and capture sediment contained in the runoff.

For activities related to the cultivation of cannabis, the applicant intends to cultivate on areas of the property with slight slope of less than 10% within cultivation area. A year-round groundcover of native and pasture grasses will be maintained over the entire site. Disturbance activities will not be conducted during the wet season, Oct 15 to April 15, and cover crops will be used in the canopy area during the winter.

9.7 PUBLIC ROADS

The project site is assessable off of State Highway 175, is a State dedicated public roadway and maintained by the Department of Transportation (Caltrans). The use of this public road to and from the property will not result in an impact to downstream hydrologic structures nor the geomorphological features of waters of the state. This is due to the fact that discharge will not increase and the turbidity of waters that are turbid will decrease do to monitoring, maintenance and systematic implementation of BMPs. This will result in a net positive impact on downstream hydrologic features, both natural and manmade.

There is no risk of increase in stream discharge from the property because soil infiltration capacity is not being

decreased, storm water drainage systems such as ditches release water onto hill slopes where it infiltrates, rather than directly into streams, and there are no stream diversions. All best Management Practice and Storm Water Management Procures and Plans shall be implemented. Additionally, the project facility will adhere to all Federal, State and local agency requirements.

9.8 COMPLIANCE WITH THE REQUIREMENTS OF CHAPTER 29, STORMWATER MANAGEMENT ORDINANCE OF THE LAKE COUNTY ORDINANCE

The applicant has reviewed the Lake County Storm Water Management Ordinance and finds the project to be in compliance with the ordinance. This project minimizes development, meets Regional Water Quality Control Board requirements, as has been enrolled in the general discharge waiver program since April, 2018, and does not require an NPDES storm water management plan or SWPPP as the area has been previous disturbed, used an existing agricultural use and routine maintained.

9.9 PROPOSED GRADING

Any proposed grading at the cultivation site will be done on an area with an average slope of less than 10%. If grading occurs, it will be under 50 cubic yards. The previous disturbed area and existing ranch roads will be routinely maintained. This location is more than 150 feet from surface waters and has a native vegetative buffer strip intact for over 250 feet surrounding the entire garden. Any project grading will utilize all available and required BMP's, and commence only once all applicable permits have been acquired. Additionally all Best Management Plans will be implement year around.

9.10 STORMWATER (BMPS)

The applicant will implement a storm water management plan to protect waterways and water bodies from runoff and erosion. The property uses the following design measures and operational tactics to minimize harmful run off from reaching any water ways or water bodies.

Site Design Measures (BPMs): Locate cultivation site more than 150 feet from any spring or top bank. Locate covered storage areas more than 150 feet from any spring or top bank

Minimize compaction of highly permeable soil and use of impervious surfaces. Limit clearing and grading of native vegetation at the site to the minimum area needed to build the project, allow access and provide fire protection. Minimize use of impervious surfaces by concentrating development on the least- sensitive portions of the site, while leaving the remaining land in a natural, undisturbed state.

Erosion and Sentiment Prevention Methods (BMPs) Hire an experienced, reputable, and licensed operator to conduct operations if heavy equipment is required to develop roads and the grow site. Minimize grading and soil disturbance during grow site development. Native grass seed will be applied outside of the cultivation area to disturbed areas before installation of mats/blankets and wattles. Storm water drainage structures should not discharge onto unstable slopes, earthen fills, or directly to a watercourse. Drainage structures should discharge onto stable areas with straw bales, slash, vegetation, and/or rock riprap. The applicant and project managers will check

and maintain erosion control/drainage structures and keep culverts clear of debris. Remove excess soil and other debris and place used material in safe and dry environment. All necessary control structures should be in place and functioning, and all areas of exposed soil because of grading should be stabilized as soon as possible after grading is complete and before any precipitation event that could cause erosion and/or deliver storm water runoff to a water body. Riparian zones will be avoided, and vegetation will be maintained to protect water courses from growing operations.

9.11 CONSTRUCTION STORM WATER MANAGEMENT PLAN

The applicant does not anticipate any new construction at the cultivation site or on property other than the construction and use of prefabricated storage facilities (sheds less than 200 square feet); fencing the and installation of water tanks. However, the applicant will implement a Low Impact Development (LID) strategy when possible. Additionally, the applicant may install a temporary office building upon permit issuance if necessary and will adhere to all Federal, State and local agency requirements.

The applicant will implement construction (BMPs)by scheduling construction activities during dry weather and keep grading operations to a minimum during the rainy season.

Protect and establish vegetation to prevent dislodging and transporting of soil. Train and educate construction crews and personnel to better understand the effects of storm water pollution from construction projects and learn ways to prevent or minimize pollution on the job.

Stabilize construction entrances and exits to prevent tracking onto roadways. Protect exposed slopes from erosion through preventative measures such as covering the slopes to avoid contact with storm water by hydroseeding, a pplying mulch and/or using plastic sheeting. Use brooms and shovels whenever possible to maintain a clean site instead of a hose.

Establish a vehicle storage, maintenance and refueling area to minimize the spread of oil, gas and engine fluids. The use of oil pans under stationary vehicles will take place. The applicant will protect drainage inlets from receiving polluted storm water using filters such as fabrics, gravel bags or straw wattles, and so doing check on a regular basis the weather forecast and be prepared for rain by having necessary materials onsite before the rainy season.

9.12 PARAMETERS AND METHODS OF MONITORING

The Annual will report to either the Central Valley Regional Water Quality Control Board or the California State Water Resources Control Board as required, and reporting forms will be made available to the Lake County Community Development Department (CDD).

Storm water Management plan and notes will be kept on areas needing improvement. Any failing elements within the system that could result in the illicit discharge of storm water will be addressed immediately. Ongoing storm water reporting logs will be made available to the County and/or other regulatory agencies.

9.13 REVIEW

The applicant and project managers will review the Storm Water Management Plan on an annual basis, in conjunction with the review of the Water Uses Management Plan.

Section 10 Waste Management

10.1 PURPOSE

The Waste Management Plan (WMP) provides guidelines to minimize the generation of waste and for the proper disposal of waste produced during the cultivation and processing of cannabis. The primary objective is to prevent the release of hazardous waste into the environment, minimize the generation of cannabis vegetative waste and dispose of cannabis vegetative waste properly, and manage growing medium and dispose of growing medium properly. The WMP includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local agencies.

10.2 SOLID WASTE

OVERVIEW

The Solid Waste Management Plan (SWMP) is implemented from seed to storage to sale. In each stage of the business cycle the applicant will carefully consider the lifecycle and environmental impact of all materials brought on property and used in cultivation and packaging. Reusable, compostable or recycled materials are preferred and the applicant will seek to continuously improve efficiencies and reduce volume each year in business.

SCOPE

The Solid Waste Management Plan focuses on the following: The reduction of solid waste in accordance with the County of Lake and the State of California's conservational goals, in particular bearing in mind the demand that has been placed on the County's local landfill due to the event of recent catastrophic wild fires and residential and commercial structure losses.

The operations of a sustainable solid waste management system to ensure the protection of the environment, streams, riverbeds, wetlands and all habitats surrounding the cultivation premises. Mitigating the amount of solid waste diverted to a landfill. Properly monitoring, evaluating of effectiveness of the plan, and reporting of data to Lake County and the appropriate local agencies

All employees are required to follow the procedures outlined in this plan.

SOURCES OF SOLID WASTE

We have identified the following items as sources of potential solid waste generated at our facility:

WASTE TYPE	ANNUAL ESTIMATE	PEAK - DAILY ESTIMATE
Paper	100 LBS	1 LBS
Glass	50 LBS	½ LBS
Metal	0	0
Electronics	0	0
Plastic	200 LBS	1 LBS
Organics	300 LBS	0.82 LBS
Inerts	250 LBS	0.68 LBS
Household hazardous waste	100 LBS	0.27 LBS
Special waste	10 LBS	0.28 LBS
Mixed residue	0	0

SOLID WASTE REDUCTION PLAN

The applicant intends to decrease waste by 25% over the first three years of operations and will continue to make efforts to reduce waste a priority. Total volumes are recorded and logged each month as benchmarks for next year's goals.

SOLID WASTE REDUCTION PLAN (BMPs)

The applicant, achieve annual rate of waste diversion with a target goal of 90%. Assign and train staff on waste reduction and discuss waste and recycling strategies once per quarter and at the beginning of each phase of the cultivation process with subcontractors and vendors with the goal of reducing solid waste generation. Designate multiple spaces on the property to collect recyclable materials and sort materials into biodegradable, recyclable and non-recyclable receptacles Reuse and recycle materials to divert waste from landfill; and promote conscientious purchasing with the following:

- Consider lifespan of the purchase, utilize warranties and servicing options
- Consider purchases with replaceable parts so they are easy to repair

- Look for products that can easily be reused or recycled or are made from recycled materials
- Check that the products do not contains toxic materials
- Consider products with minimal packaging

The applicant will purchase farm inputs and materials in bulk using reusable totes and containers and looks for companies that use reusable, compostable; or recyclable packaging while working with logistics vendors to maximize transportation and logistics efficiencies.

Work with packaging vendors who share our waste reduction goals and offer recyclable materials; Design packaging with eco-friendly, reusable and/or recyclable materials; and budget financial resources to waste reduction.

Evaluate waste reduction programs with professionals, annually, and modify as needed to achieve our goal. Manage, track and analyze information for actionable insights and cost savings.

SOLID WASTE COLLECTION

The applicant maintains separate trash enclosures and storage areas for organics, recyclable waste and non-recyclable waste in compliance with Lake County Ordinances. All compostable waste will be composted on site. All non-compostable solid waste will be hauled to a solid waste facility, obtaining record from solid waste facility showing the acceptance of all solid waste, address of facility, the date, the volume or weight.

For onsite collection of waste, will place portable waste bins designated for green waste, recyclables and non-recyclables in the most convenient and highly trafficked areas for easy disposal. At the end of each day, all solid waste will be brought to the respective solid waste collection area and stored in a secured bin to prevent wildlife from entering.

Two to four times per month, designated employees will gather all non-compostable solid waste and haul to the Clearlake Landfill and Quakenbush Facilities in Clearlake, CA or the Lake County Transfer Station in Lakeport, CA, using a company truck. Recycling waste will be placed into reusable bins for transport. Non-recyclable waste will be placed in bags. All solid waste will be secured under tarps in transit. All waste will be hauled and dispose of in accordance with all Federal, State and local agency requirements. The applicant will keep accurate records of all waste dispose of, including receipts.

MONITORING AND DOCUMENTING THE GENERATION AND REDUCTION OF SOLID WASTE

The applicant, project managers, including all employees will track and calculate, in tons, total waste leaving the property and waste diversion rate monthly. The applicant a project manager is responsible for recording total weight of recyclable and non-recyclable solid waste removed from the property and records are be kept for inspection and

review in a locked office.

We will benchmark annual ratio of retail-ready flower products to solid waste generated.

DATA REPORTING

The applicant and project managers will share all data pertaining to the cost of implementation, success/failure rates of the solid waste plan and any effort taken to mitigate the generation of solid waste to Lake County on a quarterly basis or as requested.

REVIEW

The applicant and project managers, will review all procedures in the Solid Waste Management Plan once a year and will take action to ensure full compliance with local, state and federal regulations that pertain to solid waste management.

10.3 HAZARDOUS WASTE MANAGEMENT PLAN

OVERVIEW

The Hazardous Waste Management Plan (HWMP) is designed to identify and evaluate hazards associate with cannabis cultivation at the project site(s). This includes analysis of cultivation, processing, storing and packaging as well as all other activities associated with the production of cannabis on site. The goal of the plan is to determine whether there are existing hazards which require preventative control. Hazards include biological, chemical or physical.

The applicant does not intend to use or produce any hazardous waste on site.

SCOPE

The Waste Management Plan focuses on the following: The identification of any and all hazards associated with cannabis cultivation, processing and packaging on site. The management, storage and recordkeeping of hazardous materials. Proper clean up and disposal and emergency spill response procedures.

All employees are required to follow the procedures outlined in this plan. Any deviations from this plan must be immediately brought to the attention of applicant and project managers.

HAZARD ANALYSIS

The analysis includes the following: Biological hazards, including microbiological hazards; chemical hazards, including radiological hazards, pesticide(s) contamination, solvent or other residue, natural toxins, decomposition, unapproved additives, or food allergens. Physical hazards, such as stone, glass, metal fragments, hair or insects.

In the case the preventative controls are recommended, the applicant will implement those measures before each

season.

IDENTIFICATION OF POTENTIAL HAZARDS

Biological Hazards:

Cultivation activities may require the use biologically active fertilizers. Application of these products will follow all rules for safe pesticide and fertilizer storage and application. All employees will be trained in the safe handling of potential biological hazards.

Chemical Hazards:

The applicant will utilize organic farming, and prioritizes the use of non-hazardous products and materials, there may be a potential for chemical hazards with the use of cleaning products, fuels, and various construction materials. Should employees use these products, all will be trained in safe handling and application procedures. All potentially hazardous materials will be stored in a manner to minimize the risk of spillage and contamination, in a secure and clearly marked area.

Physical Hazards:

An analysis of the cultivation site produced no evidence of physical hazards. To limit potential future risk, the site will be kept free of rubbish and debris, and employees will wear appropriate protective clothing while working on site.

Evaluation:

The most effective strategy to reduce the potential for illness and injury from hazardous wastes is to reduce their use and presence onsite. In the case that hazardous material is stored and used, the following best management practices are followed to reduce risk:

All hazardous materials will be clearly labeled as hazardous and stored in a manner which reduces the risk of spillage and contamination. All employees will be trained in the safe handling and storage protocols for hazardous materials.

All employees will be briefed on the emergency response plan for possible spillage of, or exposure, to hazardous waste, and the location of emergency contacts and response procedures. All hazardous waste will be disposed of properly.

In regard to the end product and the cannabis consumer, we will evaluate the following:

- The sanitation conditions of the processing site;
- The operation's transportation and transfer practices;

- Processing procedures;
- Packaging and labelling activities;
- The storage of packaging and/or the finished cannabis;
- Any other relevant factors product

The applicant intends to only produce pure cannabis flower products for the medical and adult use (commercial) consumer market. No additional ingredients or additives will be used in the processing or packaging process. Licensed distribution companies involved in the transport of the products will be assessed for the safe and sanitary conditions of their company vehicles used for transport. Products, at the time of transfer and transport will be placed in compliant packaging, and completely sealed from the outside environment in airtight containers.

All, processing, and packing facility will follow the guidelines set for the in the USDA's Sanitation Performance Standards Compliance Guide, in order to ensure the highest standards for employee and consumer safety.

MANAGEMENT OF HAZARDOUS WASTE

Currently there are no RCRA or Non-RCRA hazardous waste located on the premises. Clear plastic totes will be used for the storage of potentially hazardous waste and clearly labeled to display the volume and type of material stored. Containers will be stored in a locked storage area and will only be accessible to authorized staff.

The type of material, date, and time will be entered into a hazardous waste manifest located within the secure storage area and will be stored for five years. When returning material into storage, the type of material, volume used, name of employee, date and time will be entered into the manifest. Storage areas containing hazardous waste will be inspected weekly by all staff, including the applicant and project managers to ensure accurate record keeping and safe storage conditions.

EMERGECY PROTOCOL – FOR SPILL OR CLEAN UP

In the case of a spill, the employee shall:

Perform an initial risk assessment from a safe distance, first considering the type of material spilled, volume of spill, potential for fire or airborne vapor; and then immediately make contact with the applicant and the project managers and give an initial risk assessment. In the risk of fire or an emergency, call 911 or the Kelseyville Fire Protection Department/Cal Fire, Lake County Sheriff's Department, California Department of Highway Patrol, and locate the nearest posted fire extinguisher(s). If no immediate fire risk is present, employee shall change into appropriate safety gear/equipment and clean up spill immediately. After spill has been cleaned, place material in a secure storage bin to be taken to a hazardous waste recovery facility along with all clothing worn during clean up. If an immediate risk is perceived, all staff will evacuate the premises, contact the appropriate response authorities, and log as the nature of the spill for reporting to emergency response authorities.

EMPLOYEE TRAINING

All staff will be responsible for the safe handling, storage, and disposal of hazardous materials. An introductory training on company procedures will be conducted before any employees can begin working. Training will include:

- Procedures for the safe disposal of hazardous materials. Storage locations containing hazardous materials and the labeling system for materials.
- How to appropriately log and track the movement and use of hazardous materials onsite; and required safety gear and appropriate clothing to wear while handling hazardous materials;
- Use of hazard grade Personal Protection Equipment according to the specific requirements of the hazardous material including: rubber gloves, rubber boots, glasses or eye protectant, ear protectant, apron or skin protector, air filter face mask, chemical spill UL grade filter, proper wash and storage are of PPE materials;
- Chemical bins and storage will be separate from all other material and handled accordingly;
- Emergency spill response procedure, the location of emergency response contact information, locations first aid stations and the location of fire extinguishers on the premises

RECORD KEEPING AND STORAGE

The applicant does not intend to utilize or generate hazardous waste as part of the cannabis cultivation program. However, data will be logged into the hazardous waste manifest located in storage where hazardous materials are stored, in the case of use or incidental generation.

The storage room shall be maintained with the materials safety data sheets (MSDS) appropriate to the contents of the room. All employees shall be trained for competency on how to read and understand these documents:

- Name of chemical;
- Manufacturer's information;
- Hazardous ingredients/identity information;
- Physical/chemical characteristics;
- Fire and explosion hazard data;
- Reactivity data;
- Health hazard data;
- Precautions for safe handling and use
- Control measures: Duplicate copies of the MSDS shall be maintained in a separate location on-site, along

with records of the locations of volatile or restricted substances.

10.4 CANNABIS VEGETATIVE MATERIAL WASTE MANAGEMENT PLAN OVERVIEW

The Cannabis Vegetative Material Waste Management Plan (CVMWMP) provides compliant guidelines for on-site composting and removal of all cannabis waste, organics and green waste.

The CVMWMP includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to Lake County and the proper local and/or state agencies.

SCOPE

The Vegetative Material Waste Management Plan focuses on the following:

- The recording and benchmarking of the amount of cannabis vegetative waste generated on site on an annual basis. The reduction of cannabis vegetative waste generation; and the processing, storage and disposal of cannabis vegetative waste

All employees are required to follow the procedures outlined in this plan.

ESTIMATES FOR CANNABIS VEGETATIVE WASTE

We estimate that the Cultivations cannabis crop will produce 500 lbs. of cannabis vegetative waste which will consist of stems, branches, trunks, roots and other organic materials from the plant rendered useless in the harvesting process.

CANNABIS VEGETATIVE WASTE REDUCTION PLAN

The reduction plan hinges on healthy plants and the composting of all clean unusable cannabis vegetative waste on site.

PROCESSING, STORAGE AND DISPOSAL (BMPs)

The proposed use shall recycle all vegetative wastes to birds and transport any solid wastes to the compost area. All leaves from pruning will also be given to our Peacocks to minimize cannabis vegetative waste. All green waste is held in designated holding area for 72-hour period with affixed batch information and weight before beginning the composting process to render unusable, cannabis vegetative waste will be shredded and made unrecognizable and added to a ground mixture of at least 50% non-cannabis material, tracking each batch from disposal to compost through track and trace once the system is live at the State level.

Green waste that is unable to be composted for any reason will disposed of in a secure receptacle and brought to a solid waste facility, obtaining record from solid waste facility showing the acceptance of the green waste material, address of facility, the date, the volume or weight of cannabis accepted. Detailed records of cannabis vegetative waste will be logged and benchmarked for the Clearlake Landfill and/or Quakenbush Facilities or Lake County Transfer

Station in Lakeport, CA.

STORAGE

The facility will feature a secure cannabis waste area for cannabis plants that have been marked for disposal. At the close of each day, cannabis plant waste from the property will be removed and placed in the secured cannabis waste area and held for a minimum of 72 hours. The secure waste area will remain locked and only authorized personnel will have access. At the end of each week, all cannabis products that have been marked for disposal shall be rendered unusable by grinding and incorporating them with other ground organic materials (e.g., food, coffee grounds, shredded paper), yielding a mixture that is at minimum 51 percent non-cannabis waste by volume. The mixture will then be transferred to the composting site. Once a month, on a regular basis, the compost will be turned to encourage proper rates of decomposition.

MONITORING AND DOCUMENTING

The applicant is committed to monitoring and documenting the amount of cannabis vegetative waste that is generated by the facility on a monthly basis. These processes will include:

Weighing and logging the total amount of organics and cannabis waste generated. Weighing and documenting the total amount of retail-ready cannabis flower products against cannabis vegetative waste generated.

DATA REPORTING

The applicant will share with the County of Lake, Department of Public Services on a quarterly basis or as requested, all data pertaining to the cost of implementation and success/failure rates of the reduction plan, and any effort taken to mitigate the generation of organic waste.

COMPLIANCE

The Vegetative Material Waste Management Plan has been developed in compliance with the appropriate local, county and state laws that pertain to the composting and recycling of organic and green waste produced by our cultivation process, including:

Cannabis, Non DAA qualified, AB 2490; State Reduction Goals, AB 341 (organics out of landfills goal); State Reduction Goals, California 70-percent reduction plan; Cannabis Cultivation Policy, California State Water

Resources Board; California Code of Regulations, Title 3 Food and Agriculture, Division 8 Medical Cannabis Cultivation, Section 8108 Cannabis Waste Management.

REVIEW

The applicant and project managers will review all procedures in the Cannabis Vegetative Waste Management Plan once a year and will take action to ensure full compliance with local, state and federal regulations that pertain to the usage of organic soils, mediums, amendments, and inputs.

All employees are required to follow the procedures outlined in this plan. Any deviations from this plan must be immediately brought to the attention of the applicant and their project managers.

10.5 ESTIMATED MEDIUM USAGE

Projected 2020 Growing Medium: 600 Yards Projected 2021 Growing Medium: 600 Yards Projected 2022 Growing Medium: 600 Yards.

Type of Growing Medium: Compost-based organic potting soil. Our soils are mixed with compost at a 2:1 ratio respectively and mixed into the natural beds. We prefer to grow in planters as it reduces waste and the need to replenish soils annually. This technique drastically reduces our growing medium waste. Unless the soil is compromised, the soil will never be removed from the property or disposed of.

WASTE REDUCTION (BMPs)

The following are best management practices used to reduce growing medium waste and disposal:

Plant cover crop to boost soil fertility and protect from storm events Implement Integrated Pest Management practices to avoid the need for pest control, contamination and new grow medium No agrochemicals, Genetic Modified Organisms (GMO), or synthetic additives will be used during the cultivation of cannabis.

CULTIVATION (BMPs)

The applicant only uses organic inputs to amend soils, combat pests and grow healthy plants.

Our Added Amendments to Soil:

- Worm Castings (3-5 Gallons Per Yard)
- Organic Bat Guano (12% Nitrogen, 12%Phosphorus, and 2.5% Potassium)
- Organic Granular Kelp (1.0% Nitrogen, 15% Phosphorus, and 2% Potassium)

- Organic Humus Soil (3-5 Gallons per Yard)
- Organic Fish Powder (15% Nitrogen, 0.5% Phosphorus, and 0.5% Potassium)
- Fish Bone Meal (4% Nitrogen, 17% Phosphorus, and 0% Potassium)
- Shrimp Meal (6% Nitrogen, 6% Phosphorus and Calcium, and 0% Potassium)

Tea Recipe - Actively Aerated Compost Tea (AACT):

- Worm Castings
- Humus
- Kelp Extract
- Fish Hydrolysate
- Liquid Humic Acid
- Endo Mycorrhizae

PESTS (BMPs)

We also reduce growing medium waste through pest control, applying an integrated ecosystem-based strategy that focuses on long-term prevention of pests through a combination of techniques such including:

Biological control habitat manipulation modification of cultural practice uses of resistant varieties.

MONITORING PERFORMANCE OF GMP AND WASTE GENERATION

In monitoring Growing Medium Waste, the applicant and project managers, including employees will measure waste in tons. As referenced above, we reuse and recycle all growing medium that is brought onto our site. The only time we remove growing medium is if the soils are compromised. We will measure growing medium waste in tons when deposited at the Clearlake Landfill or Quakenbush facilities, or the Lake County Transfer Station, Lakeport, CA.

SOIL REMOVAL GUIDELINES

In the case that soil is compromised and needs to be removed from the property, the following guidelines are followed:

Excavated soil will be loaded directly onto trucks for off-hauling to the appropriate waste disposal facility. After the soil is loaded into the transport truck, the soil will be covered with secured tarps according to all applicable CA. Department of Transportation regulations to prevent soil from spilling during transport to the disposal facility.

If excavated impacted soil is stockpiled on-site prior to off-hauling, it will be placed on a paved surface and covered with plastic tarp and held down by weights. Stockpiled soil, if any, will be covered with plastic sheeting, or other

similar material, at the end of each workday. A stockpile that is not being actively worked on for more than 60 minutes will be covered with plastic sheeting to prevent dust from leaving the site.

REPORTING TO LAKE COUNTY

All testing result will be recorded in logs managed by the applicant and their project managers. Data collected during the cultivation of cannabis will be shared and reported to County of Lake, and the following agencies upon request:

The CA. Department of Food and Agriculture; and the Department of Health.

REVIEW

The applicant(s) and project managers will review all procedures in the Growing Medium Management Plan once a year and will take action to ensure full compliance with local, state and federal regulations that pertain to the usage of organic soils, mediums, amendments, and inputs.

Section 11 Water Resources

11.1 PURPOSE

The Water Resources Management Plan (WRMP) has been designed to minimize adverse impacts on surface and groundwater resources and to ensure that on site water resources and management is in full compliance with applicable local, county and state regulations.

The WRMP, in conjunction with the Water Use Plan, identifies best management practices and evaluates these strategies to reduce water demand, increase water supply, reduce potential sediment delivery to waterways, improve water quality, and enhance environmental and resource stewardship.

The Water Resources Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to County of Lake and the proper local agencies.

11.2 SCOPE

The proposed use WRMP focuses on the following:

- Identifying property water resources and provide description of watershed on lot of record;
- Best management practices to limit adverse impacts to water resources;
- Monitoring and reporting methodology of water resources;

All employees are required to follow the procedures outlined in this plan. Any deviations from this plan must be immediately brought to the attention of applicant and their project managers.

11.3 OVERVIEW

The project parcels well was permitted in May of 2020. The Ag/domestic well was completed in June of 2020 by Peterson Well Drilling. According to the Well Completion Report, the well produces a minimum of 35 (or greater) gallons perm minute. The well depth is approx. 240-300 feet in depth.

The well is sealed to the outsides environment and is self-contained. The project parcels and proposed use will have a solar well pump installed. The well will supply three (3) 5000 gallon storage tanks next to cultivation site on a full mechanical float switch shut off system.

Water is delivered to the irrigation system via a 1 hp jet pump pressure tank system. The use shall use a drip irrigation system to water plants. Our projected monthly water usage is approximately 100,000 gallons for cultivation.

11.4 WATERSHED DESCRIPTION

The project parcel is located in the Cole Creek Watershed. The parcel is approximately 180 acres of pasture, forested land containing primarily black oak and blue oak, with a small conifer component consisting of several mature grey pines and ponderosa pines, and natural brush.

11.5 WATER CONSERVATION (BMPS)

The applicant will draw our best management practices from Central Valley Regional Water Quality Control Board BMP for Cannabis Cultivation and all Federal, State and local agency requirements, including Chapter 30 (Grading) of the Lake County Code. All employees and managers will practice the following:

- Do not obstruct, alter, dam or divert all or a portion of a natural watercourse without notification and approval from CDFW under the Lake and Streambed Alteration Program;
- Regularly inspect the entire water delivery system for leaks and repair leaky faucets and connectors;
- Line water conveyance ditches/canals to reduce waste and the unreasonable use of water;
- Use rainwater catchment systems to collect and store storm water during the rainy season in tanks, bladders, or engineered ponds to reduce the need for water diversions and/or pumping of groundwater during low flow periods (late summer to fall);
- Install float valves on all water storage systems to keep them from overflowing onto the ground;
- Hand water or use drip/trickle Irrigation systems, and limit watering;
- Use mulch to conserve soil moisture in cultivated areas, pots and bins;
- Water pump intakes should be screened to prevent the entrainment of threatened or endangered aquatic species - consult Fish and Game Code sections 6020-6028;
- Base layout and site development on a qualified expert's recommendations with respect to any listed species protected under California or federal law - avoid any action that constitutes a "taking" under the

Federal Endangered Species Act or California Endangered Species Act, unless accompanied by an Incidental Take Statement or Incidental Take Permit issued by the appropriate agency.

11.6 EROSION, SEDIMENT, ROADS, AND STORMWATER (BMPS)

We draw our best management practices for erosion, sediment, roads and storm water from Central Valley Regional Water Quality Control Board BMP for Cannabis Cultivation. All employees and project managers will practice the following:

- A licensed timber operator (LTO) must be utilized if any commercial tree species are to be removed from the site;
- Grow site development and road construction will be conducted in a manner that minimizes grading and soil disturbance;
- Avoid cultivating on steep slopes (greater than 30% grade) and disturbing any areas with landslides, gullies, and slips;
- Avoid construction and soil disturbance in the winter and/or during periods of wet weather;
- Seed, mulch, and/or rock areas that have been disturbed by grading, excavation, and/or road construction activities;
- Erosion control mats/blankets and wattles should be used to protect disturbed areas on steep slopes. Native grass seed will be applied to disturbed areas before installation of mats/blankets and wattles. Wattles will be installed on contour to prevent concentrating runoff and mats/blankets will be installed per manufacturer's guidelines if necessary;
- Storm water drainage structures will not discharge onto unstable slopes, earthen fills, or directly to a watercourse. Drainage structures will discharge onto stable areas with straw bales, slash, vegetation, and/or rock riprap;
- All drainage and storm water infiltrations features will be assessed for their ability to withstand a 2-year storm event;
- Regularly check and maintain erosion control/drainage structures and keep culverts clear of debris;
- Haul away excess soil and other debris and locate any stockpiled materials in areas where they can be protected from erosion and will not discharge to a watercourse or lake;
- Compact and contour stored soil/spoils to mimic natural slope contours and drainage patterns to reduce the potential for fill saturation and failure, or erosion;
- Rip compacted soils prior to placing stored soil/spoils to prevent the potential for ponding which could lead to stored soil/spoil site failure and subsequent sedimentation;
- All necessary drainage/erosion control structures will be in place and functioning, and all areas of exposed soil as a result of grading will be stabilized as soon as possible after grading is complete and before any precipitation event that could cause erosion and/or deliver storm water runoff to a water body;
- Riparian zones will be avoided and vegetation should be maintained to protect watercourses from growing operations;

- Do not service, fuel, or store equipment within 100 feet of surface water bodies;
- Store petroleum products in a covered building with secondary containment at least 200 feet away from surface water bodies;
- New roads will be planned and designed to stay as far away from watercourses as possible and to minimize the number of watercourse crossings;
- Decommission or relocate existing roads away from riparian zones whenever possible;
- Blade existing roads in dry weather, but while moisture is still present in soil to minimize dust and maximize compaction to prevent fine sediments from discharging from the road surface;
- Do not side cast bladed material to areas where it can enter a water body directly or be delivered to a water body during a storm event;
- Out-slope roads wherever possible to prevent the concentration of storm water flow within an inboard/inside ditch, to promote even drainage of the road surface, and to minimize disruption of the natural sheet flow pattern off a hill slope to a stream;
- If unable to eliminate inboard/inside ditches, line them with geotextile fabric and/or rock and ensure adequate ditch relief culverts to prevent down-cutting of the ditch and to reduce water runoff concentration and velocity;
- Neither in-sloped nor out-sloped roads will be allowed to develop or show evidence of surface rutting or gullying. Use water bars and rolling dips to break-up slope length, diverting water to well-vegetated or armored areas. The distance between water bars and/or rolling dips should not exceed 150 feet, and that distance should be shortened for roads with steep grades (greater than 15%) or with an easily erodible surface;
- Use gravel to "weatherproof" roads used during the winter or wet weather periods;
- All road watercourse crossing structures will allow for the unrestricted passage of water and should be designed to accommodate the 100-year flood flow - consult CAL FIRE 100-year Watercourse Crossings document for examples and calculations (minimum of 18" diameter for all culverts);
- Road watercourse crossing structures on watercourses that support fish will be constructed for the unrestricted passage of fish at all life stages, and require permitting from CDFW;
- Culverts used at watercourse crossings will be of sufficient length to extend beyond fill/sidecast material, and will be installed at the same level and gradient of the stream bed in which they are being placed;
- Culverts used at watercourse crossings will be designed to direct flow and debris toward the inlet using wing-walls, beveling of the pipe, rock armoring, etc.;
- Low-water or ford style watercourse crossings will be armored along the bed and banks with clean durable rock of a sufficient size as not to move downstream during high flow periods, yet without creating a damming effect on the flow - rock will be placed on either side to the break in slope to prevent water from diverting around the material;
- Stream crossing structures should be designed, constructed, and maintained to prevent stream diversion in the event that the crossing becomes plugged.

11.7 WETLAND/RIPARIAN PROTECTION AND MANAGEMENT

- The use shall not disturb aquatic or riparian habitat, such as vernal pools, spawning sites, large wood, or shading vegetation unless authorized under a CWA section 404 permit, CWA section 401 certification, Regional Water Board WDRs (when applicable), or a CDFW LSA Agreement. All required permits will be obtain and maintained for life of the project.

- The proposed use, and the applicant/project managers, including employees will maintain existing, naturally occurring, riparian vegetative cover (e.g., trees, shrubs, and grasses) in aquatic habitat areas to the maximum extent possible to maintain riparian areas for stream bank stabilization, erosion control, stream shading and temperature control, sediment and chemical filtration, aquatic life support, wildlife support, and to minimize waste discharge.

11.8 WASTEWATER AND SEWAGE MANAGEMENT

The subject property will utilize an existing conventional septic system in the near future or when the temporary office is constructed in the near future, that will be approved by Lake County Environmental Health and meets current state standards. The applicant will ensure the following: **(NOTE: No construction will occur at this time)**

- All human or animal waste is disposed of properly
- Onsite wastewater treatment systems (e.g., septic system) are permitted by the local agency;
- We will not use a cesspool for domestic or industrial wastewater disposal;
- We will not install or continue use of an outhouse, pit-privy, pit-toilet, or similar device without approval from the County of Lake;
- The use will not dispose of domestic wastewater unless it meets applicable local agency requirements.

11.9 MONITORING PERFORMANCE AND MANAGEMENT

The applicant, project managers and employees will conduct biannual monitoring inspections of the cultivation site, all associated facilities, all roadways associated with cannabis cultivation, and any water bodies potentially impacted by cultivation related activities. The first monitoring will occur annually by November 1 of each calendar, and will ensure the following criteria are met *(Monitoring will occur year around and on a regular basis)*

- All stockpiles, soil amendments, pesticides, and fertilizers have been properly stored and/or protected;
- Erosion and sediment controls have been properly installed and are functioning, and all areas of exposed soil have been stabilized in preparation for the winter wet weather period;
- Drainage structures (water bars/rolling dips) have been installed and are functioning on all access roads, and all access roads intended for use during the winter wet weather period have been weatherproofed;
- All trash/refuse has been cleaned up where it cannot pass into or be transported into any water body and empty/used containers have been properly disposed of per manufacturer's instructions;
- All water containment/storage ponds/dams have been inspected and appear to be in good, and stable condition;

The second monitoring inspection will occur annually after April 1st and before June 15th of each calendar year, and will ensure the following criteria are met:

- All stockpiles, soil amendments, pesticides, and fertilizers have remained properly stored and/or contained;
- Erosion/sediment controls implemented on bare soils have remained effective in preventing discharge of earthen materials and sediments off site;
- All access roads appear in good condition and erosion/sediment control has been effective in preventing discharge of earthen materials and sediment off-site;
- All permitted water containment structure/ponds/dams have remained effective and in good condition;

11.10 WRMP EVALUATION AND PERFORMANCE REPORTS

Based on the findings of the biannual monitoring inspections, the applicant and/or project managers will assess the efficacy of the WRMP. If monitoring shows that measures implemented have proven effective, we will report the findings continue to inspect the site biannually. If the measures implemented on site have proven ineffective, we will submit a remediation plan to the CVRWQCB as well as a timeline for work to be accomplished. The remediation plan will include proof that any permits required to complete the intended work will be obtained in a timely fashion to the appropriate regulatory agency. All data collected by site inspection will be shared with all concerned Lake County agencies.

11.11 REVIEW

The applicant and project managers will review the Water Resources Management Plan on an annual basis, in conjunction with the review of the Water Uses Management Plan.

11.12 COMPLIANCE

The applicant has applied to the Regional State Water Board on March 27th of 2017. The project parcel was granted a notice of applicability on May 2, 2020. Registration ID# H509371, Cannabis General Order Application #427172.

A copy of the Central Valley Regional Water Quality Control Board BMP for Cannabis Cultivation will be kept on site at all times.

As of the date of this application, we hold the following permits:

- Tier I Central Valley – Notice of Applicability

Section 12 Water Use

12.1 PURPOSE

The Water Use Management Plan (WUMP) has been designed to conserve the County's water resources and establish best management practices to ensure the plan is followed at all times, as well as is in full compliance with applicable local, county; and state regulations.

The Water Use Management Plan includes measures to monitor and evaluate the performance of the plan, as well as ensure that all data and information is reported to the County of Lake and appropriate local agencies.

12.2 SCOPE

The Water Use Management Plan focuses on the following:

- Developing and maintaininga safe, clean, and reliable water supply;
- Meeting all legal requirements for the use of water resource located on the property and providing documentation of legal compliance;
- Monitoring the quantity of water used for the cultivation of cannabis;
- Designing a water efficient delivery system and irrigation system for cannabis cultivation. All employees are required to follow the procedures outlined in this plan;

12.3 OVERVIEW

The project parcels well was permitted in May of 2020. The Ag/domestic well was completed in June of 2020 by Peterson Well Drilling. According to the Well Completion Report, the well produces a minimum of 35 (or greater) gallons perm minute. The well depth is approx. 240 to 300 feet in depth. The well is sealed to the outsides environment and is self-contained and produced greater than 35 gallon per minute.. The applicant will have a well pump. The well has three 5000-gallon storage tanks next to the cultivation site, with a full mechanical float switch shut off system. Water is delivered to irrigation system via a 1hp jet pump pressure tank system. The facility shall use a drip irrigation system to water plants. The cannabis will be grown in above ground pots/boxes within the engineered greenhouses equipped with air filtration system and a black out film. The cannabis plants will be irrigated at agronomic rates via drip irrigation system.The operation will use mulch and water during the morning or late afternoon/early evenings when temperatures are cooler to minimize evaporative loss. The cannabis plants will be hand watered after every top dressing, which is applied three (3) times per crop run/rotation. During cultivation, the cannabis pants will receive nutrients approximately once per week throughout the growing season. Nutrients are mixed in tanks with a release valve on the underside of the tanks to completely flush residual nutrients which are then re-mixed and reused in subsequent feedings. The cannabis will be grown in above ground pots/boxes within the engineered greenhouses equipped with air filtration system and a black out film. The cannabis plants will be irrigated at agronomic rates via drip irrigation system. The operation will use mulch and water during the morning or late afternoon/early evenings when temperatures are cooler to minimize evaporative loss. The cannabis plants will be hand watered after every top dressing, which is applied three (3) times per crop run/rotation. During cultivation, the cannabis pants will receive nutrients approximately once per week throughout the growing season. Nutrients are mixed in tanks with a release valve on the underside of the tanks to completely flush residual nutrients which are then re-mixed and reused in subsequent feedings. gallons. The water tanks will be equipped with the fire hydrant equipment, to allow emergency personnel appropriate water access if necessary. The water will then be diverted to the cultivation area and all cannabis plants will have drip irrigation system as noted above. The operation anticipates using approximately 441.75 gallons of water per day for the mixed light cultivation, which is approximately 161,238.75 gallons annually. (The above figures are weather dependent and are only estimated water usage totals. Applicant has installed flow meters at all critical points to measure actual yearly water usage upon implementation of the project)

Applicant will not engage in any unlawful drawing of surface water. Applicant will not use water provided by a public water supply, unlawful water diversions, transported by a water hauler, bottled water, a water vending machine or a retail water facility. The subject property is outside any County Water District "Exclusion Areas."

12.4 WATER STORAGE (BMPS)

The applicant will install vertical storage tanks according to manufacturer's specifications and place the tanks on properly compacted soil that is free of rocks and sharp objects and capable of bearing the weight of the tank and its maximum contents with minimal settlement. Water will be stored polyethylene water tanks with a total of 15,000 gallons of water stored close to the cultivation site.

New storage tanks will be located in areas with great slope stability and at the cultivation site. To prevent rupture or overflow and runoff, the applicant will only use water storage tanks and bladders equipped with a float valve, or equivalent device, to shut off diversion when storage systems are full. All vents and other openings on water storage tanks will be designed to prevent the entry and/or entrapment of wildlife. We will also monitor the meter on a regular basis to ensure excess water is not being used.

12.5 IRRIGATION SYSTEM

Daily watering of cannabis will be achieved via a drip irrigation system powered by a 1HP jet pump and pressure tank system. The watering will be administered by a timed irrigation controller, set to irrigate during the nighttime when the evaporation rates will be the lowest. Drip lines will be sized to irrigate large areas slowly, to maximize absorption, and will be placed under a layer of straw mulch. Hose bibs will be stationed throughout the cultivation area for spot watering.

IRRIGATION & SPRINKLERS (BMPs)

The following are irrigation best management practices implemented:

- The site will utilize a drip irrigation system with a schedule that requires use of as little water as possible;
- Regularly inspect our entire water delivery system for leaks and immediately repair any leaky faucets, pipes, connectors, or other leaks;
- Replace worn, outdated, or inefficient irrigation system components and equipment to ensure a properly functioning, leak-free irrigation system at all times;
- Install according to the irrigation design specifications, locally applied codes and standards, and manufacturers' product requirements;
- Actively manage the system and adherence to all applicable watering limitations;
- Ensure sprinkler heads and nozzles will apply water uniformly to the target area;
- Match the precipitation/application rate of the sprinklers for each zone (+/– 5 percent);

- Designed to reduce overspray of impervious surfaces or adjacent planting areas, and prevent runoff of water
- Avoid low head drainage;
- Drip irrigation will be utilized instead of spray sprinklers in narrow or complex shaped areas;

12.6 MONITORING PERFORMANCE OF WATER

The applicant will maintain records of diversion with separate records that document the amount of water used for cannabis cultivation separated out from the amount of water used for other irrigation purposes and other beneficial uses of water (e.g., domestic, fire protection, etc.). These records will be available upon request from the Water Boards or any other authorized representatives of the state.

The applicant will share data relating to the cost of implementing the water management plan with the County as requested.

12.7 EVALUATING PERFORMANCE OF THE WATER USE MANAGEMENT PLAN Annually,

The applicant and project managers will review the Water Use Management Plan and recorded logs in conjunction with the reviews of all management plans. Upon review, the applicant will address any outstanding issues immediately. Additionally, a professional evaluation of the water plan will occur annually with the goal of improving water management practices.

12.8 CALIFORNIA DROUGHT DECLARATIONS

The applicant recognizes that on occasion, the Governor of California and the Lake County Board of Supervisors has and likely will continue to periodically issue a proclamation of a local or state emergency based on drought conditions on any given year. In the event of such a Declaration, the applicant will abide by all emergency regulations adopted in response to drought conditions.

12.9 EMERGENCY USE PLAN

In the case of an emergency that a retail water is needed, the proposed use will work with a licensed retail water supplier as defined by Section 13575 of the Water Code and provide the following information to the Department in 7 days:

- A description of the emergency;
- Identification of the retail water supplier including license number;
- Volume of water supplied;
- Actions taken to prevent the emergency in the future

12.10 WATER USE PLAN COMPLIANCE

The Water Use Plan has been developed in compliance with the appropriate local, county, and state laws that pertain to the Water Use. These include:

- Cannabis Cultivation Policy & California State Water Resources Board;
- California Code of Regulations, Title 3 Food and Agriculture, Division 8 Medical Cannabis Cultivation, Section 8107;
- County of Lake Ordinance 3703;
- Division of Water Rights, Principles and Guidelines for Cannabis Cultivation.

12.11 REVIEW

The applicant and their project managers will review the Water Use Plan on an annual basis and will share data relating to the cost of implementing this plan with the County as requested.

Irrigation Methods

NETAFIM USA

FLEXNET™ FLEXIBLE PIPE

A REVOLUTIONARY LEAK-PROOF FLEXIBLE MAINLINE AND MANIFOLD PIPING SOLUTION THAT'S FOLDABLE, MOVABLE AND AFFORDABLE

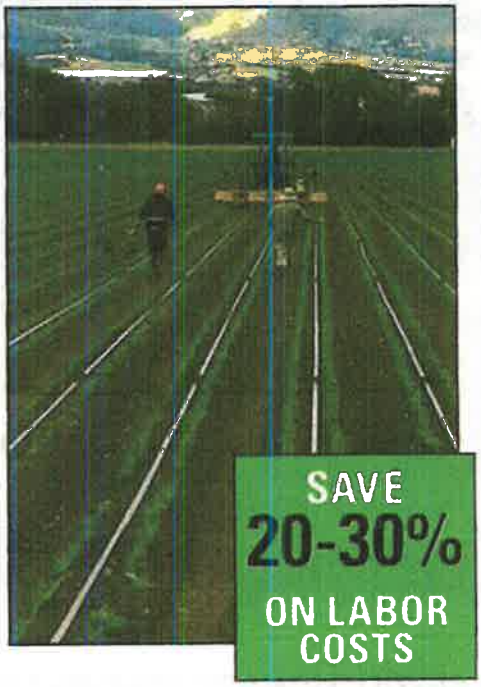
NETAFIM™
GROW MORE WITH LESS

FLEXNET™ FLEXIBLE PIPE

Did you know that better irrigation uniformity means more dollars in your pocket? Don't compromise your irrigation with leaky layflat products. Netafim has the solution - FlexNet - the industry's only leak-proof flexible pipe that ensures the integrity and uniformity of your irrigation system. Manufactured with premium polypropylene, FlexNet is durable enough to withstand the toughest conditions. When compared to a typical layflat installation, a grower can save 20-30% on labor costs. The unique integral welded connectors provide faster layout and retrieval decreasing manpower costs. It's time to increase your bottom line and put more dollars in your pocket.

- **QUICK ASSEMBLY**
  Integral welded connectors ensure a secure, leak-proof connection between distribution pipes and laterals (with no teflon or glue required when using Netafim fittings)
- **AGRO-MACHINERY FRIENDLY**
  When not pressurized, it's so durable it can be stepped on or driven over
- **LOW EXPANSION RATE**
  Pipe lays flat, has zero axial elongation and will not tangle or bend

FlexNet is simple, flexible and light-weight for maximum portability and quicker movement from field to field. It can be used in surface or subsurface applications and requires no specialized tools for installation.




SURFACE INSTALLATION


SUBSURFACE INSTALLATION

FLEXNET VS. OTHER MAINLINE PIPING OPTIONS

FEATURE	FLEXNET	PE/PVC/ALUM PIPE	LAYFLAT
COLLAPSIBLE	✓	-	✓
WELDED OUTLETS	✓	-	-
LIGHT-WEIGHT	✓	-	-
LONG LIFESPAN	✓	✓	-
CAN BE DRIVEN ON	✓	-	✓
LEAK-PROOF SOLUTION	✓	-	-

PRODUCT ADVANTAGES

- Proven to reduce the overall material and labor costs of the entire irrigation system since faster layout and retrieval decreases manpower costs.
- Integral welded connectors ensure a secure, leak-proof connection between distribution pipes and laterals while reducing labor time and costs.
- Increases irrigation efficiency by eliminating leaks which waste water and reduce pressure and flow to the plants impacting uniformity and yield.
- Versatile and durable to withstand the most stringent climatic and environmental conditions.
- Offered with a full line of branching and lateral connectors compatible with all Netafim systems.

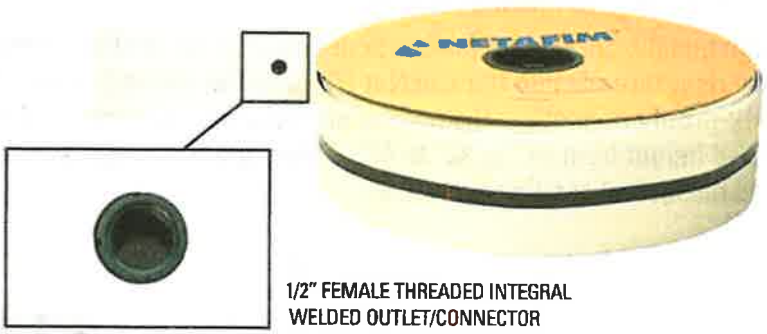
FLEXNET™ FLEXIBLE PIPE

APPLICATIONS

- Agricultural, Horticultural and Mining
- Used for transfer, distribution and manifold pipe
- Subsurface and surface installations
- Use with Thinwall or Heavywall driplines

SPECIFICATIONS

- Sizes: 2", 3", 4", 6" and 8" (10" by special request)
- Outlet Spacing: 30", 36", 40", 60", 72" or 80" (other spacings by special request)
- Outlets: Integral Welded 1/2" Female Threaded
- Coil Length: 328' (100 meters)
- Black Stripe for Identification
- UV and Chemical Resistant



1/2" FEMALE THREADED INTEGRAL WELDED OUTLET/CONNECTOR

SPECIFICATIONS

- Maximum Recommended Working Pressure:
  2" - 36.2 psi
  3" - 29 psi
  4" - 25 psi
  6" - 20 psi
  8" - 14.5 psi
- FlexNet Material: 100% Recyclable Polypropylene

DRIPLINE CONNECTION

Assembly is quick and easy with installed integral welded outlets (1/2" female threaded) which are located at pre-determined spacings. Each welded outlet ensures a secure, leak-proof connection and accepts a 1/2" male threaded tee or elbow start connector which attaches the Dripline to the FlexNet pipe.

TEE START CONNECTOR THREADS INTO INTEGRAL WELDED OUTLET

DRIPLINE SECURED TO THE TEE START CONNECTOR

FLEXNET™ ACCESSORIES

QFLEX RISER

This innovative, kink-resistant and flexible riser provides an ideal solution for connecting thinwall driplines to the submain. It's suitable for on-surface or subsurface applications. One end of the QFlex riser has male threads for connection to FlexNet's 1/2" threaded integral welded connector. The thinwall dripline slips over the other end and is secured with a wire tie. An optional 1/2" male by female threaded elbow connector is also available.

SPECIFICATIONS

- Polypropylene material
- UV resistant
- Riser length: 24" or 48"
- Maximum Pressure: 43 psi
- Less than 3% elongation at 43 psi

QFLEX RISER ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
T875QFLWT050MT24-B	24" RISER 1/2" MPT X .875" TWD WIRE TIE CONNECTION (BOX OF 100)
05FX050STEL	1/2" MPT X 1/2" FMT ELBOW

NEW!!

1/2" MPT END CONNECTION FITS IN FLEXNET 1/2" INTEGRAL WELDED CONNECTOR

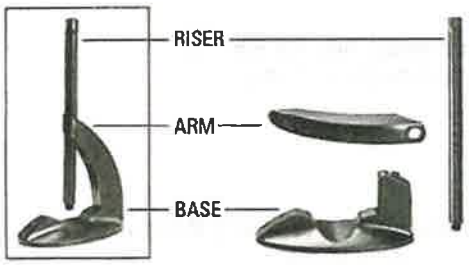
FLEXNET™ ACCESSORIES

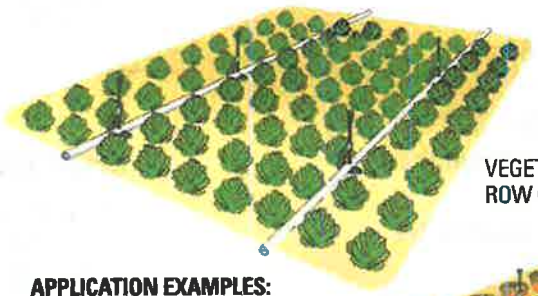
MEGASTAND™ SPRINKLER STAND

High quality, durable sprinkler stand connects to FlexNet Flexible Pipe. The riser threads into the FlexNet 1/2" integral welded connector for a leak-proof connection. Risers can be combined to increase the sprinkler stand height from 16" to 32" to 48". Three separate pieces make assembly and disassembly quick and easy.

NEW!!

MEGASTAND SPRINKLER STAND WITH MEGANET SPRINKLER





VEGETABLE ROW CROPS

APPLICATION EXAMPLES: FLEXNET, MEGANET SPRINKLER ON MEGASTAND SPRINKLER STAND

OPEN FIELD NURSERY

MEGASTAND ORDERING INFORMATION

MODEL NUMBER	DESCRIPTION
MGNBASE	BASE FOR RISER
MGNSUPPORTINGARM	SUPPORTING ARM FOR RISER
MGNRISER-16	RISER 1/2" MPT X 16" *

NOTE: ORDER (1) OF EACH ITEM FOR A COMPLETE ASSEMBLY
* RISERS CAN BE COMBINED TO INCREASE THE STAND HEIGHT UP TO (3) FOR 48" TOTAL HEIGHT

TECHNICAL & ORDERING INFORMATION

SPECIFICATIONS, DIMENSIONS & WEIGHT

SIZE	NOMINAL DIAMETER INSIDE	NOMINAL DIAMETER OUTSIDE	NOMINAL WALL THICKNESS	HEIGHT	WIDTH	COIL WEIGHT * BLANK TUBING	COIL WEIGHT * WELDED OUTLETS
2"	2.0"	2.09"	0.030"	3.9"	31"	31 LBS.	33 LBS.
3"	3.1"	3.14"	0.030"	5.6"	31"	44 LBS.	46 LBS.
4"	4.0"	4.10"	0.030"	7.3"	31"	57 LBS.	60 LBS.
6"	6.4"	6.48"	0.030"	10.8"	31"	79 LBS.	82 LBS.
8"	8.2"	8.29"	0.030"	13.2"	31"	106 LBS.	108 LBS.

* Based on coil length of 328' (100 meters)

FLEXNET ORDERING INFORMATION

STANDARD OUTLET SPACING	MODEL NUMBERS (COIL LENGTH 328')				
	2" FLEXNET	3" FLEXNET	4" FLEXNET	6" FLEXNET	8" FLEXNET
30"	05FX02PIPE50-30	05FX03PIPE50-30	05FX04PIPE50-30	05FX06PIPE50-30	05FX08PIPE50-30
36"	05FX02PIPE50-36	05FX03PIPE50-36	05FX04PIPE50-36	05FX06PIPE50-36	05FX08PIPE50-36
40"	05FX02PIPE50-40	05FX03PIPE50-40	05FX04PIPE50-40	05FX06PIPE50-40	05FX08PIPE50-40
60"	05FX02PIPE50-60	05FX03PIPE50-60	05FX04PIPE50-60	05FX06PIPE50-60	05FX08PIPE50-60
72"	05FX02PIPE50-72	05FX03PIPE50-72	05FX04PIPE50-72	05FX06PIPE50-72	05FX08PIPE50-72
80"	05FX02PIPE50-80	05FX03PIPE50-80	05FX04PIPE50-80	05FX06PIPE50-80	05FX08PIPE50-80
BLANK	05FX02	05FX03	05FX04	05FX06	05FX08


TORO®
AQUA-TRAXX®
SUPERIOR DRIP TAPE

AQUA-TRAXX®

The Standard in Drip Irrigation

Aqua-Traxx® drip tape can help you increase yield and water-use efficiency, and also improve crop quality by putting water and fertilizer right where you need them. Choose emitter spacing from 4 to 24 inches — with no cost increase — for precise placement and flexibility when designing your system. Find the perfect tape for your application with a wide variety of available flow rates, wall thicknesses and internal diameters, most requiring just 140-mesh filtration. The PBX Advantage increases durability, clog resistance and uniformity to set Aqua-Traxx apart from lesser drip tapes.

- Emitter spacing options for all soils
- Widest selection of flow rates
- Accurate delivery of water and fertilizer
- Superior clogging resistance

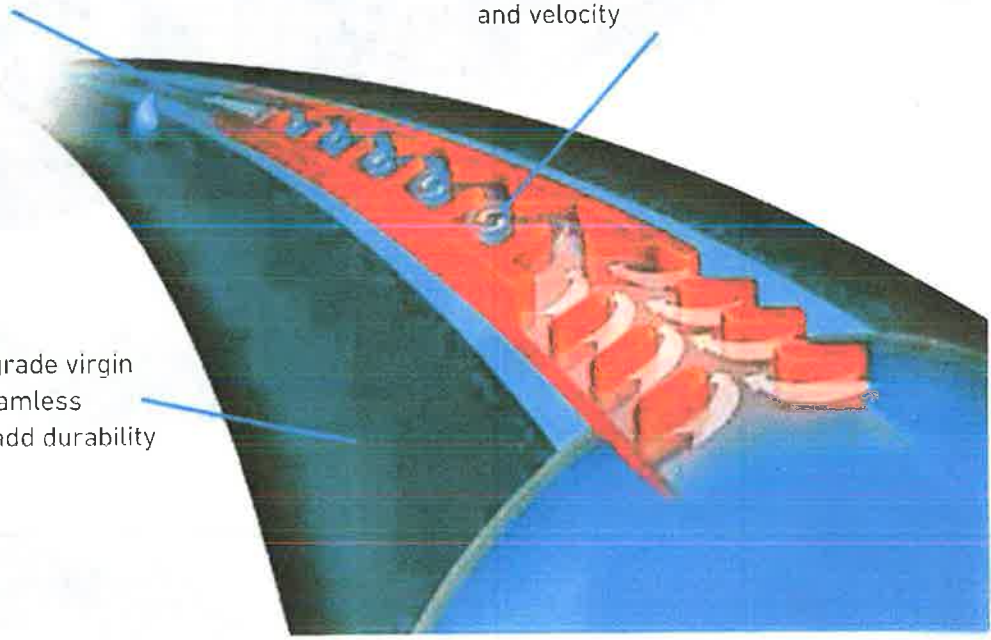
The PBX Advantage:

Aqua-Traxx® drip tape is designed and molded with a high level of precision, resulting in manufacturing consistency over 97 percent — the best in the industry. With Aqua-Traxx, you get greater reliability and more uniform output compared to lesser tapes. That's the PBX Advantage.

Precision-molded emitters resist clogging and promote uniform output

Proportionally Balanced Cross-Section (PBX) increases flow turbulence and velocity

Engineering-grade virgin resins and seamless construction add durability



WHEN WE SAY **COUNT ON IT**, WE MEAN IT

With an expanding population, growers around the world are looking to technologies that help increase productivity of existing land and maximize precious water resources. Toro's drip irrigation solutions help growers of permanent, field and row crops around the world realize substantial benefits in yield, quality, and water savings from the precise application of water and nutrients.

Visit toro.com or call (877) 373-0087 for more information or to find your local Toro dealer.
Visit driptips.toro.com to learn more about drip irrigation and how it can help your farm.

TORO. **Count on it.**

Toro Ag
1588 N. Marshall Avenue
El Cajon, CA 92020-1523, USA
Tel: + 1 (877) 373-0087 or + 1 (619) 596-2495
Fax: +1 (800) 892-1822 or +1 (619) 258-9973
toro.com | driptips.toro.com

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AQUA-TRAXX® PRODUCT SPECIFICATIONS

AQUA-TRAXX FLOW RATES

Emitter Flow Part Number	Outlet Spacing		Emitter Flow Rate				Q-100				Emitter Exponent	Filtration Requirement
			gph				gpm/100 ft		lph/1 meter			
	in	cm	@ 8 psi	@ 10 psi	@ 0.55 bar	@ 0.7 bar	@ 8 psi	@ 10 psi	@ 0.55 bar	@ 0.7 bar		mesh (micron)
0.07 gph emitter												
EAXxx0817	8	20	0.07	0.08	0.26	0.30	0.17	0.20	1.30	1.47	0.55	200 (74)
EAXxx1609	16	40	0.07	0.08	0.26	0.30	0.09	0.10	0.65	0.74		
0.09 gph emitter												
EAXxx0822	8	20	0.09	0.10	0.34	0.38	0.22	0.26	1.66	1.88	0.55	200 (74)
EAXxx1611	16	40	0.09	0.10	0.34	0.38	0.11	0.13	0.83	0.94		
0.10 gph emitter												
EAXxx0825	8	20	0.10	0.11	0.38	0.43	0.25	0.28	1.86	2.11	0.55	200 (74)
EAXxx1613	16	40	0.10	0.11	0.38	0.43	0.13	0.14	0.93	1.05		
0.13 gph emitter												
EAXxx0467	4	10	0.13	0.15	0.51	0.57	0.67	0.75	4.99	5.58		
EAXxx0644	6	15	0.13	0.15	0.51	0.57	0.44	0.50	3.33	3.72		
EAXxx0834	8	20	0.13	0.15	0.51	0.57	0.34	0.37	2.50	2.79		
EAXxx1222	12	30	0.13	0.15	0.51	0.57	0.22	0.25	1.66	1.86	0.5	140 (105)
EAXxx1617	16	40	0.13	0.15	0.51	0.57	0.17	0.19	1.25	1.40		
EAXxx1814	18	45	0.13	0.15	0.51	0.57	0.14	0.17	1.11	1.24		
EAXxx2411	24	60	0.13	0.15	0.51	0.57	0.11	0.12	0.83	0.93		
0.15 gph emitter												
EAXxx0650	6	15	0.15	0.17	0.57	0.63	0.50	0.56	3.73	4.17		
EAXxx1225	12	30	0.15	0.17	0.57	0.63	0.25	0.28	1.86	2.08	0.5	140 (105)
EAXxx1817	18	45	0.15	0.17	0.57	0.63	0.17	0.19	1.24	1.39		
0.20 gph emitter												
EAXxx04100	4	10	0.20	0.22	0.76	0.85	1.00	1.12	7.47	8.36		
EAXxx0667	6	15	0.20	0.22	0.76	0.85	0.67	0.75	4.99	5.58		
EAXxx0850	8	20	0.20	0.22	0.76	0.85	0.50	0.56	3.74	4.18		
EAXxx1234	12	30	0.20	0.22	0.76	0.85	0.34	0.37	2.50	2.79	0.5	140 (105)
EAXxx1625	16	40	0.20	0.22	0.76	0.85	0.25	0.28	1.87	2.09		
EAXxx1822	18	45	0.20	0.22	0.76	0.85	0.22	0.25	1.67	1.86		
EAXxx2417	24	60	0.20	0.22	0.76	0.85	0.17	0.19	1.25	1.40		
0.27 gph emitter												
EAXxx04134	4	10	0.27	0.30	1.01	1.13	1.34	1.50	9.99	11.16		
EAXxx0690	6	15	0.27	0.30	1.01	1.13	0.90	1.00	6.66	7.44		
EAXxx0867	8	20	0.27	0.30	1.01	1.13	0.67	0.75	4.99	5.58		
EAXxx1245	12	30	0.27	0.30	1.01	1.13	0.45	0.50	3.33	3.72	0.5	140 (105)
EAXxx1634	16	40	0.27	0.30	1.01	1.13	0.34	0.37	2.50	2.79		
EAXxx1830	18	45	0.27	0.30	1.01	1.13	0.30	0.33	2.22	2.48		
EAXxx2422	24	60	0.27	0.30	1.01	1.13	0.22	0.25	1.67	1.86		
0.34 gph emitter												
EAXxx04168	4	10	0.34	0.37	1.27	1.42	1.68	1.87	12.48	13.95		
EAXxx06112	6	15	0.34	0.37	1.27	1.42	1.12	1.25	8.33	9.31		
EAXxx0884	8	20	0.34	0.37	1.27	1.42	0.84	0.94	6.24	6.98		
EAXxx1256	12	30	0.34	0.37	1.27	1.42	0.56	0.62	4.16	4.65	0.5	140 (105)
EAXxx1642	16	40	0.34	0.37	1.27	1.42	0.42	0.47	3.12	3.49		
EAXxx1838	18	45	0.34	0.37	1.27	1.42	0.38	0.42	2.78	3.10		
EAXxx2428	24	60	0.34	0.37	1.27	1.42	0.28	0.31	2.08	2.33		
0.53 gph emitter												
EAXxx04265	4	10	0.53	0.59	2.01	2.24	2.65	2.96	19.75	22.08		
EAXxx06133	6	20	0.53	0.59	2.01	2.24	1.33	1.48	9.87	11.04		
EAXxx1288	12	30	0.53	0.59	2.01	2.24	0.88	0.99	6.58	7.36	0.5	140 (105)
EAXxx1666	16	40	0.53	0.59	2.01	2.24	0.66	0.74	4.94	5.52		
EAXxx2444	24	60	0.53	0.59	2.01	2.24	0.44	0.49	3.29	3.68		
EAXxx3629	36	90	0.53	0.59	2.01	2.24	0.29	0.33	2.19	2.45		

AQUA-TRAXX WALL THICKNESS

Diameter	Wall Thickness	Pressure psi min	Pressure psi max†	Pressure bar min	Pressure bar max†	Reel Length ft	Reel Length meters	Reel Weight lbs	Reel Weight kg
5/8" (16mm) 0.635"	4 mil	4	8	0.3	0.55	15,000	4,572	66	30
	5 mil	4	10	0.3	0.7	13,000	3,962	72	33
	6 mil	4	12	0.3	0.8	10,000	3,048	64	29
	8 mil	4	15	0.3	1.0	7,500	2,286	66	30
	10 mil	4	15	0.3	1.0	6,000	1,829	63	29
	12 mil	4	15	0.3	1.0	5,100	1,554	63	29
	15 mil	4	15	0.3	1.0	4,000	1,219	63	29
5/8" (16mm) **Short Reels** 0.635"	6 mil	4	12	0.3	0.8	2,500	762	17	8
	8 mil	4	15	0.3	1.0	2,000	610	17	8
	15 mil	4	15	0.3	1.0	1,000	305	16	7
7/8" (22mm) 0.880"	5 mil	4	10	0.3	0.7	10,000	3,048	67	30
	6 mil	4	10	0.3	0.7	7,380	2,250	68	31
	8 mil	4	15	0.3	1.0	6,000	1,829	72	33
	10 mil	4	15	0.3	1.0	4,400	1,341	71	32
	12 mil	4	15	0.3	1.0	4,000	1,219	72	33
	15 mil	4	15	0.3	1.0	3,000	914	66	30
1" (25mm) 0.990"	13 mil	4	15	0.3	1.0	3,000	914	66	30
1 1/8" (28mm) 1.130"	15 mil	4	15	0.3	1.0	3,000	914	71	32
1 3/8" (35mm) 1.380"	15 mil	4	15	0.3	1.0	2,700	823	87	39

KEY

PART NUMBER: EA 5 05 04 67 - 1300
EA = Aqua-Traxx
5 = Diameter (inch)
05 = Mil Thickness
04 = Emitter Spacing (inch)
67 = Flow Rate (gpm/100 ft)
1300 = Reel Length (feet/10)

*X denotes the diameter. 5 for 5/8", 7 for 7/8", 8 for 1", 9 for 1 1/8" and 11 for 1 3/8"
**xx denotes mil thickness

***1" only available in 13 mil; 1 1/8" only available in 15 mil; 1 3/8" only available in 15 mil.
Metric outlet spacing expressed in nominal length.
Coefficient of Variation (Cv) Less than 3%.
† While operating or flushing, pressures within laterals are not to exceed maximum pressure specification.

There is a Toro Aqua-Traxx® drip tape for every application. Call your local Toro dealer if you have any questions about choosing the best tape for your crop, soil type and terrain. You can also find AquaFlow, Toro's drip irrigation system design program, at **driptips.toro.com**

INTEGRATED PEST MANAGEMENT

REGALIA® CG
BIOFUNGICIDE

A plant extract to boost the plant defense mechanisms against certain fungal and bacterial diseases and to improve overall plant health.

- Apply 2-4 tbsp/ gallon every 7-10 days
- Use as a dip for transplants and drench the root zone for root strength
- Begin first spray application at first true leaf

GRANDEVO® CG
BIOINSECTICIDE

Start strong to protect your plants from nutrient robbing mites, thrips and aphids that impact yield and overall plant health:

- Start EARLY, before infestation occurs
- Apply 2-4 tbsp/gallon every 7 -10 days
- Multiple modes of action
- Alternate with Venerate CG

VENERATE® CG
BIOINSECTICIDE

Venerate is your go-to in season insecticide with multiple modes of action to beat down pests impacting the health and productivity of plants.

- Apply 2-5 tbsp/gallon every 7 days
- No limit to number of applications per season
- No spray buffer needed
- Alternate with Grandevo CG

CG PRODUCTS: EASY ON BENEFICIAL INSECTS, NO ACUTE TOXICITY TO ADULT HONEY BEES, MRL EXEMPT, 0 DAY PHI, 4 HOUR REI, OMRI LISTED.

Best Practices

- Biopesticides work best when mixed with water at a pH of between 6-8 and ideally treated before breakouts occur.
- Use a non-acidifying adjuvant such as NuFilmP to enhance coverage.
- Complete coverage matters! Pests begin on leaf undersides, so higher pressure sprayers with finer droplets (100+ psi) can greatly improve pest management.
- Tank mixing Regalia Cg with Grandevo CG or Venerate CG can reduce labor. Always test a new mix of biopesticides and adjuvants on a few plants to assess the safety (phytotoxicity) of the mix. Evaluate the plants 48 hours after application.
- Be proactive in your pest management. Along with maintaining a sanitary growing environment, keep your humidity at acceptable levels, remove plants and plant material that are a danger to other plants.
- Always carefully inspect incoming plant material. Consider using an isolation area prior to intermingling with other plants as hitchhiking insects, mites and diseases may take some time to be apparent.
- Weekly applications of insecticides and miticides are generally good for proactive management. However, if battling an outbreak of mites or insects, consider tightening up your spray program to every 4-5 days for two weeks so that you break the egg to egg-laying adult life cycle.
- Keep your biopesticides in the best condition. Between use store in a dry location between 35 and 90F.

BIO WITH BITE.™

marronebio.com/cg

Marrone® Bio Innovations

CANNABIS PEST GUIDE

Marrone® Bio Innovations

APHIDS
Damage: Weakens plants and leaves by sucking nutrients from the leaves. Can also carry viruses.
Found: Under leaves

CONTROL
Grandevo CG: Spray
2-4 TBSP / Gallon, Weekly
Venerate CG: Spray
2-5 TBSP / Gallon, Weekly

THRIPS
Damage: Pokes holes in plant and sucks. Very small and cigar shaped, pointy butt. Can significantly reduce yields.
Found: Under leaves

CONTROL
Grandevo CG: Spray
2-4 TBSP / Gallon, Weekly
Venerate CG: Spray
2-5 TBSP / Gallon, Weekly

POWDERY MILDEW
Damage: Slows down photosynthesis, ruining harvest.
Found: Easy to spot from white powdery fungus on leaves.

CONTROL
Regalia CG: Spray Early to Prevent
2-4 TBSP / Gallon, Weekly
Can be mixed with insecticides

MITES
Damage: Weakens plants through sucking. Too small to see. They reproduce very quickly, common in soil. Leaves can turn yellow and curl, droops stem discolors. Found: Under leaves

CONTROL
Grandevo CG: Spray and Drench
2-4 TBSP / Gallon, Weekly
Venerate CG: Spray and Drench
2-5 TBSP / Gallon, Weekly

BOTRYTIS
Damage: Spreading rapidly, it is capable of destroying a crop quickly. Found: High humidity related, brown or grey appearance, and can look dry, lifeless. Can be spread by unclean tools.

CONTROL
Regalia CG: Drench Early to Prevent
2-4 TBSP / Gallon, Weekly
Can be mixed with insecticides

WHITE FLIES
Damage: Sucking the life out of plants and reproduce quickly (180-200 in each egg laying). 2 mm size, located underside of leaves, take care to spray thoroughly under the leaves.

CONTROL
Grandevo CG: Spray 2-4 TBSP / Gallon, Weekly
Venerate CG: Spray 2-5 TBSP / Gallon, Weekly

SPECIMEN LABEL

VENERATE® CG

BIOINSECTICIDE

Active Ingredient:
Heat-killed *Burkholderia* spp. strain A396 cells
and spent fermentation media* 94.46%
Other Ingredients: 5.54%
Total: 100.00%

*Contains not less than 1,500 Beet Armyworm Killing Units (BAWKU)/mg.
Note: The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

EPA Reg. No.: 84059-14

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID	
IF IN EYES:	• Hold eye open and rinse slowly and gently with water for 15–20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.

CAN BE USED IN ORGANIC PRODUCTION

Marrone® Bio Innovations
1540 Drew Ave., Davis, CA 95618 USA
info@marronebio.com

OMRI® LISTED
For Organic Use

VENCG_EM012017_0917_V1

LOT #: PRINTED ON CONTAINER

PN 61609

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wear goggles or safety glasses. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear: long-sleeved shirt and long pants, waterproof gloves, shoes plus socks and protective eye wear. Mixers/loaders and applicators must wear NIOSH-approved particulate respirator with any P or R filter with NIOSH approval number prefix TC-84A or a NIOSH-approved powered air purifying aspirator with a HE filter with NIOSH approval number prefix TC-21C. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization. Follow manufacturer's instructions for cleaning and maintaining PPE. If there are no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS: 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.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

USER SAFETY RECOMMENDATIONS

Users should remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Users should remove PPE immediately after handing this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

For terrestrial uses: Do not apply directly to water, or 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. See the Directions for Use section of this label for application instructions that minimize risk to bees and other beneficial insects, *including those used in Integrated Pest Management (IPM) programs or organic agriculture.*

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation. 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.

- In New York State, aerial application is prohibited.
- In New York State, application is prohibited within 100 feet of any surface water.

AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and 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. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.

PPE required for early entry to treated areas (that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water), is:

- Protective eyewear
- Coveralls
- Chemical resistant gloves (made from any waterproof material)
- Shoes plus socks

EXCEPTION: If the product is soil incorporated or soil injected, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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 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.

For non-WPS uses: Keep unprotected persons out of treated areas until sprays have dried.

PRODUCT INFORMATION

VENERATE® CG is a biological insecticide containing killed cells of *Burkholderia* spp. strain A396 and spent fermentation media for use on agricultural crops against the pests listed in the Directions for Use section. VENERATE® CG controls insect pests by enzymatic degradation of exoskeletal structures and interference with the molting process leading to mortality through contact and/or ingestion. VENERATE® CG controls or suppresses many foliar feeding pests including caterpillars and foliage feeding coleopteran and many soft-bodied insects such as, aphids, whiteflies and plant sucking mites infesting labeled crops and plants. For insect control, the concentrate of VENERATE® CG must be mixed with water and applied as a foliar spray with ground or aerial equipment equipped for conventional insecticide spraying.

VENERATE® CG can be used in either the field or greenhouse for the control of any labeled pest.

GENERAL USE INSTRUCTIONS – FOR INSECT CONTROL

VENERATE® CG is an insecticide for use against listed insects. Close scouting and early attention to infestations is highly recommended. Proper timing of application targeting newly hatched larvae, nymphs or immature pests is important for optimal results.

Thorough coverage of infested plant parts is necessary for effective control. For some crops, directed drop nozzles by ground machine are required.

Under heavy pest populations, use the higher label rates, shorten the spray interval, increase the spray volume to improve coverage, and/or apply in tank mixture with another product that has activity on the target pest.

Repeat applications at an interval sufficient to maintain control, usually 3–10 days depending upon plant growth rate, insect and mite activity, and other factors. If attempting to control an insect population with a single application, make the treatment when egg hatch is essentially complete but before economic damage occurs.

The use of adjuvants with VENERATE® CG is not recommended, except to improve control of insect pests in situations where achieving uniform plant coverage is difficult such as closed crop canopy, dense foliage and penetration into waxy leaf surfaces.

Bees and beneficial insects:

- To minimize potential exposure to bees and other pollinating insects, do not apply while bees are foraging.
- Do not allow product to drift to blooming crops or weeds if bees are foraging.
- Minimize spray drift away from the target area to reduce effects to other non-target insects.

VENERATE® CG has been evaluated for toxicity to non-target insects in a variety of bioassays and on a variety of crops under various normal growing conditions. However, testing all beneficial insects, in all situations, mixtures and combinations, is not feasible. Prior to treating entire crop where the release of beneficial insects serve as part of an Integrated Pest Management (IPM) program, consult with an extension specialist, a pest control advisor (PCA) or with the product manufacturer.

VENERATE® CG has been evaluated for phytotoxicity on a variety of crops under various normal growing conditions. However, testing all crop varieties, in all mixtures and combinations, is not feasible. Prior to treating entire crop, test a small portion of the crop for sensitivity.

GROUND APPLICATION

Apply VENERATE® CG in ground equipment with quantities of water sufficient to provide thorough coverage of infested plant parts. Attention should be given to sprayer speed and calibration, wind speed, and foliar canopy to ensure adequate spray coverage.

Mixing directions

Important – Fill tank 1/2 to 3/4 of desired amount of water. Start the mechanical or hydraulic agitation to provide moderate circulation before adding VENERATE® CG. Add the desired volume of VENERATE® CG to the mix tank and the remaining volume of water and continue circulation. Maintain circulation while loading and spraying. Do not mix more VENERATE® CG than can be used in 24 hours. Use a strainer no finer than 50 mesh in conventional spray systems.

Tank mixing

Do not combine VENERATE® CG in the spray tank with other pesticides, surfactants, adjuvants, or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective, or non-injurious under your use conditions.

To ensure compatibility of tank mix combinations they must be evaluated prior to use. To determine the physical compatibility of this product with other products use a jar test. Using a quart jar, add the proportionate amounts of the products to one quart of water with agitation. Add dry formulations first, then flowables second, then emulsifiable concentrates last. After thoroughly mixing, let this mixture stand for 5 minutes. If the combination remains mixed or can readily be remixed, it is physically compatible. Once compatibility has been proven, use the same procedure for adding required ingredients to the spray tank.

Row Crop Application

Use calibrated power-operated ground equipment capable of providing uniform coverage of the target crop. Orient the boom and nozzles to obtain uniform crop coverage. A minimum of 0.23 gallon per 1000 sq. ft. by ground should be utilized, increasing volume with crop size and/or pest pressure. Use hollow cone, disc core/hollow cone or twin jet flat fan nozzles suitable for insecticide spraying. Under certain conditions, drop nozzles may be required to obtain complete coverage of plant surfaces. Follow manufacturer's recommendations for ideal nozzle spacing and spray pressure and minimize boom height to optimize uniformity of coverage and maximize deposition to reduce drift.

Orchard Spraying

- Dilute spray application: This application method is based on the premise that all plant parts are thoroughly wetted, to the point of runoff, with spray solution. To determine the number of gallons of dilute spray per acre, contact your extension specialist, state agricultural experiment station, or certified pest control advisor for assistance.
- Concentrate spray application: This application method is based on the premise that all plant parts are uniformly covered with spray solution but not to the point of runoff as with a dilute spray. Instead, a lower spray volume is used to deliver the same application rate of product as is used for the dilute spray.

Do not spray when wind speed favors drift beyond the area intended for use.

Avoiding spray drift is the responsibility of the applicator.

CHEMIGATION USE – DIRECTIONS FOR INSECT CONTROL

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand moved irrigation systems. Do not apply this product through any other type of irrigation system. Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system.

Spray preparation

First prepare a suspension of VENERATE® CG in a mix tank. Fill tank 1/2 to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of VENERATE® CG, and then the remaining volume of water. Then set the sprinkler to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the suspension of VENERATE® CG into the irrigation water line so as to deliver the desired rate per acre. Inject the suspension of VENERATE® CG with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. Any questions on calibration should be directed to your State Extension Service Specialists, to equipment manufacturers or other experts.

Do not combine VENERATE® CG with pesticides, surfactants or fertilizers for application through chemigation equipment unless prior experience has shown the combination physically compatible, effective and non-injurious under conditions of use. VENERATE® CG has not been fully evaluated for compatibility with all adjuvants or surfactants. It is advisable to conduct a spray compatibility test if a mixture with adjuvants or surfactants is planned.

General Requirements

1) Apply this product only through sprinkler, including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation systems. Do not apply this product through any other type of irrigation system.
2) Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
3) If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
4) Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
5) 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.

Specific Requirements for Chemigation Systems Connected to Public Water Systems

1) 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.
2) Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) 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 physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
3) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4) 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.
5) 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 pesticide distribution is adversely affected.
6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7) Do not apply when wind speed favors drift beyond the area intended for treatment.

Specific Requirements for Sprinkler Chemigation

1) 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 backflow.
2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3) 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.
4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5) 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.
6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7) Do not apply when wind speed favors drift beyond the area intended for treatment.

Application Instructions for All Types of Chemigation

1) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.
2) Determine the treatment rates as indicated in the directions for use and make proper dilutions.
3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required. Utilize agitation to keep solution in suspension.

– SHAKE WELL BEFORE USE –

FOR USE ON THE FOLLOWING CROPS FOR CONTROL OR SUPPRESSION OF INSECTS AND MITES:

Pre-harvest Interval (PHI) = 0 days

Asparagus

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Armyworms

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids

Stink bugs - tank-mix with a contact insecticide for improved control.

Bedding Plants

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Armyworms, Azalea caterpillar, Diamondback moth, Ello moth, Lo moth, Loopers, Oleander moth, Omnivorous leafroller, Omnivorous looper, Tobacco budworm

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Aphids, Azalea lace bug, Lygus, Mites, Thrips, Whiteflies

Bulbs

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Armyworms, Cross-striped cabbage worm, Cutworm, Diamondback moth, Green cloverworm, *Heliothis*, Hornworm, Imported cabbageworm, Loopers, Omnivorous leafrollers, Saltmarsh caterpillar, Webworm

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids Thrips

Bushberries

1.28-2.57 Tablespoons VENERATE® CG per 1,000 square feet
Armyworms, Cherry fruitworm, Cranberry fruitworm, Fireworms, Leafrollers, Loopers,

Plum Curculio

For Plum curculio, begin applications when adults are active and prior to start of oviposition. Repeat applications on a 4-7 day interval until adults are no longer active and developing fruit is no longer susceptible to damage. Rotation or tank-mixing with other insecticides labeled for plum curculio is recommended.

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (suppression)
Aphids, Blueberry blossom weevil, Thrips

Spotted wing drosophila – begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use of VENERATE® CG for control of spotted wing drosophila should be part of an integrated management program that includes tank-mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications at no more than a 7-day interval and more frequently if necessary to maintain control.

Stink bugs – tank-mix with a contact insecticide for improved control.

Caneberries

1.28-2.57 Tablespoons VENERATE® CG per 1,000 square feet
Armyworms, Green fruitworm, Leafrollers, Loopers, Western raspberry fruitworm

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids, Thrips

Spotted wing drosophila and Fruit flies

Spotted wing drosophila and Fruit flies – begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use of VENERATE® CG for control of spotted wing drosophila should be part of an integrated management program that includes tank-mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications at no more than a 7-day interval and more frequently if necessary to maintain control.

Stink bugs – tank-mix with a contact insecticide for improved control

Citrus

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet

Asian citrus psyllid, Citrus cutworm, Citrus leafminer, Citrus rust mite, Fruittree leafroller, Orangedog

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)

Aphids, Citrus red mite, Citrus thrips, Florida red scale, Mealybugs, Texas citrus mite, Twospotted spider mite, Six-spotted mite

Stink bugs – tank-mix with a contact insecticide for improved control.

Cranberry

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet

Armyworms, Cranberry fruitworm, Fireworms, Leafrollers, Loopers, Spanworms, Sparganothis fruitworm

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)

Aphids, Cranberry blossom weevil, Mites, Thrips

Cole Crops

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet

Armyworms, Cabbage looper, Cabbage webworm, Diamondback moth, Imported cabbageworm

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (suppression)

Aphids, Billbugs, Leafhoppers, mites, Swede midge, Thrips, Whiteflies

Stink bugs – tank-mix with a contact insecticide for improved control.

Corn

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet

Armyworm, European corn borer, southwestern corn borer, western bean cutworm, corn earworm

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)

Corn leaf aphid, mites, leafhoppers.

Stink bugs and plant bugs - tank-mix with a contact insecticide for improved control.

Cucurbit Vegetables

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet

Armyworm, Cabbage looper, Melonworm, Pickleworm,
Rindworm complex

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)

Aphids, Mites, Silverleaf whitefly, Thrips, Whiteflies

Stink bugs – tank-mix with a contact insecticide for improved control.

Fig

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet

Navel orangeworm

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)

Aphids, Thrips

Stink bugs – tank-mix with a contact insecticide for improved control.

Flowering Plants

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet

Armyworms, Azalea caterpillar, Diamondback moth, Ello moth, Lo moth, Loopers,

Oleander moth, Omnivorous leafroller, Omnivorous looper, Tobacco budworm

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet

Aphids, Azalea lace bug, Lygus, Mites, Thrips, Whiteflies

Fruiting Vegetables

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet

Armyworms, European corn borer, Hornworm, Loopers, Saltmarsh caterpillar, Thrips

Tomato fruitworm, Tomato pinworm, variegated cutworm

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)

Aphids, Mites, Psyllids, Whiteflies

Lygus, Pepper weevil, Plant bugs, Stink bugs – tank-mix with a contact insecticide for improved control. Use pheromone traps to time applications for control of pepper weevil.

Grape

1.28-2.57 Tablespoons VENERATE® CG per 1,000 square feet
Grape berry moth, Grape leafroller, Grape leaf skeletonizer, Leafhopper, Oblique banded leafroller, Omnivorous leafroller, Orange tortrix

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (suppression)
Mealybug, Pacific spider mite, Thrips, Twospotted Spider Mite, Whiteflies, Willamette Spider Mite

Stink Bugs

Stink bugs – tank-mix with a contact insecticide for improved control.

Herbs and Spices

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Armyworm, Loopers, Saltmarsh caterpillar

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids, Mites, Thrips, Whiteflies

Hops and Dried Cones

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Armyworm, Loopers

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids, Mites, Thrips, Whiteflies

Leafy Vegetables and Leaves of Root and Tuber and Legume Vegetables

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Armyworms, Cabbage Looper, Diamondback moth

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids, Mites, Psyllids, Thrips, Whiteflies

Stink bugs – tank-mix with a contact insecticide for improved control.

Ornamentals

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Armyworms, Azalea caterpillar, Diamondback moth, Ello moth,
Lo moth, Loopers,
Oleander moth, Omnivorous leafroller, Omnivorous looper,
Tobacco budworm

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Aphids, Azalea lace bug, Lygus, Mites, Thrips, Whiteflies

Pineapple

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Gummosos-Batracheda comosae (Hodges), Thecla-thecla basilides (Geyr)

Pome Fruit

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Pear psylla, San jose scale

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Stink bugs and plum curculio – tank-mix with a contact insecticide for improved control.

Pomegranate

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Armyworm, Cankerworm, Codling moth, Cutworm, Filbert leafroller, Fruittree leafroller, Gypsy moth, Oblique banded leafroller, Oriental fruit moth, Redbanded leafroller, Tufted apple budmoth, Twig borer, Variegated leafroller, Walnut caterpillar

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
European red mite, McDaniel spider mite, Pacific spider mite, Twospotted red mite

Potatoes and Tuberous and Corm Vegetables

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Aphids, Armyworms, Artichoke plume moth, European corn borer, Loopers, Potato aphid, Psyllids, Whiteflies

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Potato leafhopper

Root Vegetables

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Armyworms, European corn borer, Loopers

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids, Mites, Thrips, Whiteflies

Stone Fruits

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Green fruitworm, Leafrollers (including oblique-banded, fruit tree, pandemic, redbanded, variegated), Oriental fruit moth, Peach twig borer, Redhumped caterpillar, Tent caterpillar

Application timing: optimal timing for peach twig borer and leafrollers can vary between species and geographic locations. Monitor moth flights with pheromone traps and scout regularly to determine larval populations. Use a 7-10 day re-treatment schedule to maintain control if the crop is growing rapidly or if there is heavy pest pressure. Use a 3-4 day re-treatment schedule at flowering.

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids, Mealybugs, Mites, Thrips, Whiteflies

Spotted wing drosophila and fruit flies – begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use of VENERATE® CG for control of spotted wing drosophila should be part of an integrated management program that includes tank-mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications at no more than a 7-day interval and more frequently if necessary to maintain control.

Plum curculio – tank mix with a contact insecticide for improved control.

Strawberry

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Armyworms, Leafrollers, Thrips

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids, Mites, Whiteflies

Spotted wing drosophila and Fruit flies

Spotted wing drosophila and Fruit flies – begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use of VENERATE® CG for control of spotted wing drosophila should be part of an integrated management program that includes tank-mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications at no more than a 7-day interval and more frequently if necessary to maintain control.

Stink bugs, Plant bugs and Lygus – tank-mix with a contact insecticide for improved control.

Tobacco

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Hornworm, Looper, Tobacco budworm

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids, Mites, Thrips, Whiteflies

Tree Fruits

1.28-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Avocado leafroller, Citrus peelminer, Cutworms, Fruit tree leafroller, Omnivores leafroller, Orange tortrix, Western tussock moth

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids, Mites, Thrips, Whiteflies

Tree Nuts

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet
Fall webworm, Filbert worm, Hickory shuckworm, Naval orange worm, Oblique banded leafroller, Peach twig borer, Pecan nut casebearer, Redhumped caterpillar

2.57-5.13 Tablespoons VENERATE® CG per 1,000 square feet (Suppression)
Aphids, Mealybugs, Whiteflies

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store in a cool, dry place. Do not freeze.

Pesticide Disposal: To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

Container Handling: For plastic containers less than or equal to 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 1/4 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. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration.

For plastic containers greater than 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. Fill the container 1/4 full with water. Replace and tighten closures. 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 the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration.

For plastic, refillable containers: Refillable container. Refill this container with Venerate CG EP 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 with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat rinsing procedure two more times.

Marrone Bio Innovations is a member of the
Ag Container Recycling Council.

Visit http://www.acrecycle.org/contact for information on how to arrange pick-up of this empty pesticide container.

WARRANTY

To the extent permitted by applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. The user assumes all risks of use, storage or handling that are not in strict accordance with the accompanying directions.

Label date: Nov 2017
Patent pending
VENERATE® is a registered trademark of Marrone Bio Innovations, Inc.
Marrone Bio Innovations name and logo are registered trademarks of Marrone Bio Innovations, Inc.

1540 Drew Ave., Davis, CA 95618
1-877-664-4476
info@marronebio.com

REGALIA® CG

BIOFUNGICIDE

A plant extract to boost the plants' defense mechanisms to protect against certain fungal and bacterial diseases, and to improve plant health.

Active ingredient: Extract of *Reynoutria sachalinensis* ..... 5 %
Other ingredients: ..... 95 %
Total .....100 %

EPA Reg. No. 84059-3

GROUP P5 FUNGICIDE

KEEP OUT OF REACH OF CHILDREN

CAUTION

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

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or if going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.

CAN BE USED IN ORGANIC PRODUCTION

OMRI LISTED® For Organic Use

Marrone® Bio Innovations
1540 Drew Ave., Davis, CA 95618 USA
info@marronebio.com

REGCG_EM0617_0917_V1 LOT#: PRINTED ON CONTAINER PN61605

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wear goggles or safety glasses. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:
- Long-sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves
- Protective eyewear

Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENVIRONMENTAL HAZARDS

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.

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 requirements specific to your State or 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, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exemptions pertaining to the statements on this label about personal protective equipment (PPE) and the restricted-entry interval (REI). The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated such as plants, soil or water is:

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated. The REI does not apply when this product is used for seed treatment at planting or in hopper box treatments.

GENERAL INFORMATION

REGALIA CG® Biofungicide is an extract from the plant *Reynoutria sachalinensis* for use on ornamental plants, turf, row, greenhouse and edible and field crops. REGALIA CG® Biofungicide applied to actively growing plants (see DIRECTIONS FOR USE) will help protect treated portions from certain plant diseases and will improve plant health. Plant health benefits often result in greater yields at harvest, especially when crops are stressed by pathogens or environmental conditions. Use REGALIA CG® Biofungicide as a preventative rather than curative application. Apply prior to disease infestation to protect the growing leaf tissue, flowers and above ground fruit and vegetables. See specific information below for diseases controlled and use rates on ornamental plants, turf, row, greenhouse, field and edible crops.

REGALIA CG® Biofungicide can be used in multiple application methods to control or suppress certain soil-borne or foliar diseases and to promote healthy plant growth. See below for specific information on diseases controlled and use rates.

MODE OF ACTION

The extract obtained from *Reynoutria sachalinensis* plant material contains bioactive compounds. The extract, when applied to the host plant, activates the plant's defense system to increase phenolics and antioxidants, and strengthen cell walls. This mode of action is classified as induced systemic resistance.

When applied at rates and timing for disease control, the induced resistance against important diseases provides translaminar activity, which takes place within one to two days of application. Repeat foliar applications per label instructions. Use REGALIA CG® Biofungicide, therefore, as a preventative treatment. In addition to foliar applications, REGALIA CG® Biofungicide can be used in multiple application methods as a plant dip, soil drench, in-furrow spray, or applied through drip irrigation to control or suppress certain soil-borne diseases and to promote healthy root growth.

When applied at rates and timing for plant health effects, the improved plant defense responses minimize the impacts of stress and disease, resulting in optimized yields at harvest. Applying REGALIA CG® Biofungicide has been shown to increase leaf chlorophyll content and increase soluble protein content in some crops. These effects often lead to improved crop quality and/or yields.

MIXING AND APPLICATION INSTRUCTIONS

– SHAKE WELL PRIOR TO USE –

Mixing instructions: Prepare no more mixture than is required for the immediate operation. Agitate the solution continuously during mixing and application. Mechanical mixing is recommended for proper mixing of REGALIA CG® Biofungicide mixtures.

REGALIA CG® Biofungicide alone: Add 1/2 of the required amount of water to the mix tank. With the agitator running, add the REGALIA CG® Biofungicide to the mix tank. Continue agitation while adding the remainder of the water. Begin application of the solution after the REGALIA CG® Biofungicide has completely dispersed into the mix water. Maintain agitation until all the mixture has been applied.

REGALIA CG® Biofungicide + tank mixtures: Add 1/2–3/4 of the required amount of water to the mix tank. Start the agitation before adding any tank mix ingredients. In general, tank mix ingredients should be added in this order: wettable powders, dry flowable formulations, liquid flowable formulations, and emulsifiable formulations such as REGALIA CG® Biofungicide. Always allow each tank mix ingredient to become completely dispersed before adding the next component. Maintain continuous agitation until all components have been dispersed and throughout the application process. After all components are completely dispersed add the remainder of the water. REGALIA CG® Biofungicide cannot be mixed with another product with a prohibition against mixing. Use of the tank mix must be in accordance with the most restrictive label limitations and precautions. **Do not pre-mix REGALIA CG® Biofungicide with any other tank mix component prior to adding to the spray tank.**

Note: When using REGALIA CG® Biofungicide in tank-mixtures, all products in water soluble packaging should be added to the tank before any other tank-mix ingredient, including REGALIA CG® Biofungicide. Allow the water-soluble packaging to completely dissolve and the product(s) to completely disperse before adding any other tank-mix ingredient to the tank.

Compatibility: Do not combine REGALIA CG® Biofungicide in the spray tank with pesticides, adjuvants, or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective, and non-injurious under your use conditions. REGALIA CG® Biofungicide is compatible with many commonly used pesticides, fertilizers, adjuvants, and surfactants, but has not been evaluated with all potential combinations. To ensure compatibility of the tank mix combinations, evaluate prior to use as follows: Using a suitable container, add the proportional amounts of product to water. Add wettable powders first, then water dispersible granules, then liquid flowables, and lastly, emulsifiable concentrates. Mix thoroughly and let stand for at least five minutes. If the combination stays mixed or can be remixed, it is physically compatible. Test the mix on a small portion of the crop to be treated to ensure that a phytotoxic response will not occur as a result of the application.

Application Instructions: REGALIA CG® Biofungicide is a micro-emulsion concentrate consisting of certain ingredients extracted from *Reynoutria sachalinensis*. Use 50–mesh nozzle screens or larger. Use higher water volumes with larger sized crops and extensive foliage to obtain thorough coverage.

See FOLIAR GROUND APPLICATION section for use directions.
See CHEMIGATION section for use directions.
See BACKPACK/HANDHELD SPRAYER section for use directions.
See PRE-PLANT DIP section for use directions.
See SOIL TREATMENT section for use directions.

FOLIAR GROUND APPLICATION USE DIRECTIONS

REGALIA CG® Biofungicide can be applied in most commonly-used ground application equipment, such as tractor-mounted boom, airblast, high clearance, hose-end, backpack, and other pressurized sprayers; or hand-held sprayers: foggers or mist blowers; water wheel and other drench applicators; and shank or other soil injection method. Apply in a minimum of 50 gal. of water per acre, unless specified otherwise. Thorough coverage is necessary to provide good disease control.

BACKPACK/HAND-HELD SPRAYER USE DIRECTIONS

The use rate for REGALIA CG® Biofungicide when applied alone or as an alternate spray in a backpack or hand-held sprayer is 1.3 – 2.6 tablespoons (0.64 – 1.28 fluid ounces) per gallon of water (0.5 – 1.0% v/v dilution of REGALIA CG® Biofungicide) applied at 1.15 – 2.3 gallons per 1000 square feet (50 – 100 gallons of water per acre). When tank mixed with another fungicide, the use rate for REGALIA CG® Biofungicide in a backpack or hand-held sprayer is 0.6 – 2.6 tablespoons (0.32 – 1.28 fluid ounces) per gallon of water applied at 1.15 – 2.3 gallons per 1000 square feet (50 –100 gallons of water per acre). Use higher water volumes with larger sized crops and extensive foliage in order to secure thorough coverage. Do not use carrier volumes and/or adjuvants that create spray runoff or drip-accumulation at the base of fruit or on the harvested commodity. See specific application recommendations pertaining to each crop for additional details.

Use Rate for REGALIA CG® Biofungicide	Tbs. REGALIA CG® Biofungicide per gallon of water	Fl. oz. REGALIA CG® Biofungicide per gallon of water	v/v Dilution of REGALIA CG® Biofungicide	Applied (diluted) gallons per 1,000 sq. ft.
Applied alone or as an alternate spray	1.3 – 2.6	0.64 – 1.28	0.5 – 1.0% v/v	1.15 – 2.3
Tank mixed with another fungicide	0.6 – 2.6	0.32 – 1.28	0.25 – 1.0% v/v	1.15 – 2.3

CHEMIGATION USE DIRECTIONS

Apply this product through center pivot sprinkler systems or drip (trickle) irrigation systems. Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system. Do not use reclaimed water for application of this product.

Spray preparation
First prepare a suspension of REGALIA CG® Biofungicide in a mix tank. Fill tank 1/2 to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of REGALIA CG® Biofungicide, and then the remaining volume of water. Then set the irrigation system to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start irrigation system and uniformly inject the suspension of REGALIA CG® Biofungicide into the irrigation water line so as to deliver the desired rate per acre. Inject the suspension of REGALIA CG® Biofungicide with a positive displacement pump into the main line after the filter, and ahead of a right angle turn to insure adequate mixing. Any questions on calibration should be directed to your State Extension Service Specialists, to equipment manufacturers or other experts.

Do not combine REGALIA CG® Biofungicide with pesticides, surfactants or fertilizers for application through chemigation equipment unless prior experience has shown the combination physically compatible, effective and non-injurious under conditions of use. REGALIA CG® Biofungicide has not been fully evaluated for compatibility with all adjuvants or surfactants. Conduct a spray compatibility test if a mixture with adjuvants or surfactants is planned.

Apply REGALIA CG® Biofungicide at 1.47-5.88 tbsp. per 1,000 sq. ft. according to the instructions below unless specified differently in the **SELECTED CROPS** section.

CHEMIGATION

General Requirements -
1) Apply this product only through a drip or trickle system or center pivot sprinkler system.
2) Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
3) If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
4) Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
5) 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.

Specific Requirements for Chemigation Systems Connected to Public Water Systems –
1) 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.
2) Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) 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 physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
3) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4) 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.
5) 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 pesticide distribution is adversely affected.
6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7) Do not apply when wind speed favors drift beyond the area intended for treatment.

Specific Requirements for Sprinkler Chemigation –
1) 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 backflow.
2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3) 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.
4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5) 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.
6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7) Do not apply when wind speed favors drift beyond the area intended for treatment.

Specific Requirements for Drip (Trickle) Chemigation –
1) 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 backflow.
2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3) 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.
4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5) 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.
6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Application Instructions for All Types of Chemigation -
1) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues may cause product to lose effectiveness or strength.
2) Determine the treatment rates as indicated in the directions for use and make proper dilutions. Product can be applied continuously or at any time during the water application.
3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required.

PRE-PLANT DIP USE DIRECTIONS

Apply REGALIA CG® Biofungicide as a pre-plant dip for improved plant health and suppression of certain soil-borne diseases (see use table for more information). Apply REGALIA CG® Biofungicide at a rate of 0.64 - 1.28 tbsp of product per gallon of water as a dip (submerge roots or plugs ensuring full coverage, then remove) prior to transplanting, unless specified differently in the SELECTED CROPS section.

SOIL TREATMENT USE DIRECTIONS

REGALIA CG® Biofungicide can be applied by soil drench or in-furrow spray to improve plant health and to protect against certain soil-borne diseases.

In general, REGALIA CG® Biofungicide can be applied by the following methods, unless specified differently in the SELECTED CROPS section:

Soil Drench Applications:
Apply REGALIA CG® Biofungicide at a concentration of 0.64 - 1.28 tbsp of product per gallon of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of REGALIA CG® Biofungicide during or shortly after transplant to reduce transplant shock, suppress the listed soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14 day interval.

APPLICATION RATES FOR SELECTED CROPS

The use rate for REGALIA CG® Biofungicide when applied alone or as an alternate spray is 1.28 - 2.56 tbsp of product per gallon of water (0.5–1.0% v/v dilution of REGALIA CG® Biofungicide) applied at 1.15 – 2.3 gallons per 1000 square feet . When tank mixed with another fungicide, the use rate for REGALIA CG® Biofungicide is 0.64 – 2.56 tbsp per gallon of water applied at 1.15 – 2.3 gallons per 1000 square feet. Use higher water volumes with larger sized crops and extensive foliage in order to secure thorough coverage. Do not use carrier volumes and/or adjuvants that create spray runoff or drip-accumulation at the base of fruit or on the harvested commodity. See specific application recommendations pertaining to each crop for additional details.

GREENHOUSE USE
This product can be used to control certain diseases of container, bench, flat, plug, bed or field-grown ornamentals and edible crops in greenhouses, shade-houses, outdoor nurseries, retail nurseries and other landscape areas. For greenhouse application on the crops and diseases listed, the recommended use rate for REGALIA CG® Biofungicide is 1.28 – 2.56 tbsp. per gallon of water (0.5–1.0% v/v dilution of REGALIA CG® Biofungicide) sprayed until just before point of runoff. When tank mixed with another fungicide, the use rate for REGALIA CG® Biofungicide is 0.64 – 2.56 tbsp. per gallon of water. Repeat at 7–14-day intervals as needed. See specific application recommendations for each crop for additional details.

Pre-harvest Interval (PHI) = 0 days

Crop	Target Disease	Application Instructions
Artichoke	Powdery Mildew *(Erysiphe cichoracearum)* *(Leveillula taurica)*	**1.47-5.88 tbsp. per 1000 sq. ft. for FOLIAR (GROUND) applications.** For ground applications, apply this product in 1.15-2.3 gallons of water per 1000 sq. ft. Do not exceed 1.0% v/v of the applied solution. Apply this product preventatively or when the first disease symptoms are visible and reapply every 7–10 days **1.47-5.88 tbsp. per 1000 sq. ft. for CHEMIGATION applications** For chemigation applications for improved plant growth and suppression of soil-borne diseases, apply this product through drip irrigation immediately after transplant and at 14-day intervals or begin 14 days after transplant when soil drench applications are used.

Crop	Target Disease	Application Instructions
Bedding Plants	Anthracnose (*Colletotrichum* spp.) Bacteria (*Erwinia* spp.), (*Pseudomonas* spp.), (*Xanthomonas* spp.) Blossom Blight (*Monilinia* spp.) Downy Mildew (*Peronospora* spp.), (*Plasmopara viburni*) Gray Mold (*Botrytis cinerea*) Leaf Spot (*Alternaria* spp.), (*Cercospora* spp.), (*Entomosporium* spp.), (*Myrothecium* spp.), (*Septoria* spp.) Powdery Mildew (*Erysiphe* spp.), (*Oidium* spp.), (*Podosphaera* spp.), (*Sphaerotheca* spp.)	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR applications** For foliar applications, mix this product concentrate with water at a concentration of 1.28-2.56 tbsp. per gallon of water when used alone or 0.64-2.56 tbsp. per gallon of water when tank mixed with another fungicide. Begin applications preventatively (before disease symptoms become visible) at the 4 to 6-leaf stage and treat at 7–10 day intervals as needed prior to sale or harvest. Spray until just before point of runoff. This product may be used to control certain diseases of container, bench, flat, plug, bed, or field-grown ornamentals in **greenhouses, shade-houses, outdoor nurseries, retail nurseries,** and other **landscape areas.** Since it is not possible to test all ornamental species or varieties grown in the greenhouse, test REGALIA CG® Biofungicide on a few plants prior to large-scale usage.

Crop	Target Disease	Application Instructions
Bulb Vegetables	Botrytis Leaf Blight *(Botrytis squamosa)* Botrytis Neck Rot (*Botrytis* spp.) Downy Mildew *(Peronospora destructor)* Onion Purple Blotch *(Alternaria porri)* Powdery Mildew (*Erysiphe* spp.)	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR (GROUND) applications** For ground applications, apply this product (preventatively) in 1.15-2.3 gallons per 1000 square feet. Do not exceed 1.0% v/v of applied solution. Repeat applications at 7-10 day intervals. Under moderate to heavy disease pressure, tank-mix this product with another fungicide.

Crop	Target Disease	Application Instructions
Bushberries and Caneberries	Mummy Berry *(Monilinia vaccinii-corymbosi)* Alternaria Fruit Rot (*Alternaria* spp.) Anthracnose Fruit Rot *(Colletotrichum acutatum)* Botrytis Blight *(Botrytis cinerea)* Cranberry Early Rot* / Cranberry Fruit Rots* Leaf Rust *(Pucciniastrum vaccinii)* Powdery Mildew *(Microsphaera alni)*	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR (GROUND) applications** For ground applications, apply this product in 1.15-2.3 gallons of water per 1000 square feet. Do not exceed 1.0% v/v of applied solution. Mummy Berry – Initiate application at bud break stage of development. Apply this product preventatively and repeat on a 7–10-day interval or as needed. For best performance, tank mix this product with other registered fungicides for Mummy Berry control. Botrytis Blight – Apply this product preventatively or when the first disease symptoms are visible and reapply every 7–10 days. Anthracnose Fruit Rot and Alternaria Fruit Rot on blueberries – Initiate application at green tip and continue applications on a 7–10-day interval.
* Not for use in California		

Crop	Target Disease	Application Instructions
Citrus Crops	Alternaria Brown spot *(Alternaria alternata)* Bacterial Canker (*Xanthomonas* spp.) Bacterial Blast *(Pseudomonas syringae)* Greasy Spot *(Mycosphaerella citri)* Melanose *(Diaporthe citri)* Postbloom Fruit Drop *(Colletotrichum acutatum)*	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR (GROUND) applications** For ground applications, apply this product preventatively in 1.15-2.3 gallons of water per 1000 square feet. Do not exceed 1.0% v/v of applied solution. For improved performance, use this product in a tank mix or rotational program with other registered fungicides. Repeat applications at 7–10-day intervals.

Crop	Target Disease	Application Instructions
Cole Crops (Brassicas)	Powdery Mildew *(Erysiphe cruciferarum)* *(Erysiphe polygoni)* Alternaria Leaf Spot *(Alternaria* spp.) Downy Mildew *(Peronospora parasitica)* Pin Rot Complex *(Alternaria/ Xanthomonas)* Xanthomonas Leaf Spot *(Xanthomonas campestris)*	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR (GROUND) applications** For ground applications, apply this product at 1.47-5.88 tbsp. per gallon of water per 1000 square feet. Do not exceed 1.0% v/v of applied solution. Repeat applications at 5–10-day intervals. Under moderate to heavy disease pressure, tank mix this product with another fungicide.

Crop	Target Disease	Application Instructions
Cucurbits	Powdery Mildew *(Erysiphe cichoracearum)* *(Sphaerotheca fuliginea)* Anthracnose *(Colletotrichum lagenarium)* Alternaria Blight *(Alternaria cucumerina)* Cercospora Leaf Spot *(Cercospora citrulina)* Downy Mildew *(Pseudoperonospora cubensis)* Gummy Stem Blight *(Didymella bryoniae)* Phytophthora Blight *(Phytophthora capsici)* Bacterial Spot* *(Xanthomonas cucurbitae)*	**1.47-5.88 tbsp. per 1000 sq. ft. for FOLIAR (GROUND) applications.** For ground applications, apply this product preventatively in 0.58-2.3 gallons of water per 1000 square feet or when first symptoms of disease are visible. Increase water volume as plant size increases. Repeat applications on 7-10 day intervals depending upon crop growth and disease pressure. When greenhouse cucurbits are under high disease conditions, use the shorter spray interval. Downy Mildew – Tank mix this product with another fungicide labeled for Downy Mildew control and re-apply at a 7-day interval or according to the label directions of the tank mix ingredient. Phytophthora Blight – Apply this product in combination with labeled rates of a copper fungicide or with another fungicide labeled for Phytophthora Blight control. **1.47-5.88 tbsp. per 1000 sq. ft. for FOLIAR (GROUND) applications.** For ground applications, apply this product preventatively in 0.58-2.3 gallons of water per 1000 square feet or when first symptoms of disease are visible. Increase water volume as plant size increases. Repeat applications on 7-10 day intervals depending upon crop growth and disease pressure. When greenhouse cucurbits are under high disease conditions, use the shorter spray interval. Downy Mildew – Tank mix this product with another fungicide labeled for Downy Mildew control and re-apply at a 7-day interval or according to the label directions of the tank mix ingredient. Phytophthora Blight – Apply this product in combination with labeled rates of a copper fungicide or with another fungicide labeled for Phytophthora Blight control.

Crop	Target Disease	Application Instructions
Flowering Plants	Anthracnose (*Colletotrichum* spp.) Bacteria (*Erwinia* spp.), (*Pseudomonas* spp.), (*Xanthomonas* spp.) Blossom Blight (*Monilinia* spp.) Downy Mildew (*Peronospora* spp.), (*Plasmopara viburni*) Gray Mold (*Botrytis cinerea*) Leaf Spot (*Alternaria* spp.), (*Cercospora* spp.), (*Entomosporium* spp.), (*Myrothecium* spp.), (*Septoria* spp.) Powdery Mildew (*Erysiphe* spp.), (*Oidium* spp.), (*Podosphaera* spp.), (*Sphaerotheca* spp.)	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR applications** For foliar applications, mix this product concentrate with water at a concentration of 1.28-2.56 tbsp. per gallon of water when used alone or 0.64-2.56 tbsp. per gallon of water when tank mixed with another fungicide. Begin applications preventatively (before disease symptoms become visible) at the 4 to 6-leaf stage and treat at 7–10 day intervals as needed prior to sale or harvest. Spray until just before point of runoff. This product may be used to control certain diseases of container, bench, flat, plug, bed, or field-grown ornamentals in **greenhouses, shade-houses, outdoor nurseries, retail nurseries,** and other **landscape areas.** Since it is not possible to test all ornamental species or varieties grown in the greenhouse, test REGALIA CG® Biofungicide on a few plants prior to large-scale usage.

Crop	Target Disease	Application Instructions
Foliage Plants	Anthracnose (*Colletotrichum* spp.) Bacteria (*Erwinia* spp.), (*Pseudomonas* spp.), (*Xanthomonas* spp.) Blossom Blight (*Monilinia* spp.) Downy Mildew (*Peronospora* spp.), (*Plasmopara viburni*) Gray Mold (*Botrytis cinerea*) Leaf Spot (*Alternaria* spp.), (*Cercospora* spp.), (*Entomosporium* spp.), (*Myrothecium* spp.), (*Septoria* spp.) Powdery Mildew (*Erysiphe* spp.), (*Oidium* spp.), (*Podosphaera* spp.), (*Sphaerotheca* spp.)	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR applications** For foliar applications, mix this product concentrate with water at a concentration of 1.28-2.56 tbsp. per gallon of water when used alone or 0.64-2.56 tbsp. per gallon of water when tank mixed with another fungicide. Begin applications preventatively (before disease symptoms become visible) at the 4 to 6-leaf stage and treat at 7–10 day intervals as needed prior to sale or harvest. Spray until just before point of runoff. This product may be used to control certain diseases of container, bench, flat, plug, bed, or field-grown ornamentals in **greenhouses, shade-houses, outdoor nurseries, retail nurseries,** and other **landscape areas.** Since it is not possible to test all ornamental species or varieties grown in the greenhouse, test REGALIA CG® Biofungicide on a few plants prior to large-scale usage.

Crop	Target Disease	Application Instructions
Fruiting Vegetables	Anthracnose* (*Colletotrichum* spp.) Bacterial Spot (*Xanthomonas* spp.) Bacterial Speck (*Pseudomonas syringae*) Black Mold (*Alternaria alternata*) Damping-off (*Fusarium* spp.), (*Pythium* spp.), (*Rhizoctonia solani*) Early Blight (*Alternaria solani*) Gray Mold (*Botrytis cinerea*) Late Blight (*Phytophthora infestans*) Phytophthora Blight (*Phytophthora capsici*) Powdery Mildew (*Erysiphe* spp.) (*Leveillula taurica*) (*Oidopsis taurica*) (*Sphaerotheca* spp.) Target Spot (*Corynespora cassiicola*)	**1.47-5.88 tbsp. per 1000 sq. ft. for FOLIAR (GROUND) applications.** For ground applications, apply this product preventatively in 0.58-2.3 gallons of water per 1000 square feet. Increase water volume as plant size increases. Do not exceed 1.0% v/v of the applied solution. Repeat applications at 7–10 day intervals. Tank mix this product with other registered fungicides for improved disease control under heavy pressure. Phytophthora Blight – Apply this product in combination with labeled rates of a copper fungicide or with another fungicide labeled for Phytophthora Blight control.

* Not for use in California

Crop	Target Disease	Application Instructions
Grape	Powdery Mildew (*Uncinula necator*) Botrytis Bunch Rot (*Botrytis cinerea*) Downy Mildew (*Plasmopara viticola*) Ripe Rot (*Colletotrichum gloeosporioides*) Sour Rot (*Alternaria tenuis*) (*Aspergillus* spp.) (*Botrytis cinerea*) (*Cladosporium herbarum*) (*Penicillium* spp.) (*Rhizopus arrhizus*)	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR applications** For ground applications, apply this product preventatively in 1.15-2.3 gallons of water per 1000 square feet. Do not exceed 1.0% v/v of the applied solution. *Under high disease pressure, use in a tank mix with another registered fungicide for more effective control.* Repeat applications in 7–10 day intervals depending upon crop growth and disease pressure.

Crop	Target Disease	Application Instructions
Grass Grown For Seed	Powdery Mildew (*Erysiphe graminis*) (*Oidium* spp.) (*Podosphaera* spp.) (*Sphaerotheca* spp.) Rust (*Puccinia* spp.)	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR (GROUND) applications** For ground applications, apply this product preventatively in 0.58-2.3 gallons of water per 1000 square feet when disease symptoms are first visible or when environmental conditions are conducive to rapid disease development. Continue sprays at 7-day intervals or as needed. Do not exceed 1.0% v/v of the applied solution.

Crop	Target Disease	Application Instructions
Herbs/Spices (Field and Greenhouses)	Downy Mildew (*Peronospora* spp.) Powdery Mildew (*Erysiphe* spp.)	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR (GROUND) applications** For ground applications, apply this product preventatively in 1.15-2.3 gallons of water per 1000 square feet. Do not exceed 1.0% v/v of applied solution. Repeat applications at 7-10 day intervals.

Crop	Target Disease	Application Instructions
Hops	Downy Mildew (*Pseudoperonospora humuli*) Powdery Mildew (*Sphaerotheca macularis*)	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR applications** Apply this product preventatively when disease symptoms are first visible or when environmental conditions are conducive to rapid disease development. Continue sprays at 7-day intervals or as needed. Apply product at 1.47-5.88 tbsp. per 1000 sq. ft. when applied in a tank mix, or at 2.94-5.88 tbsp. per 1000 sq. ft. when applied alone. Minimum spray volumes for hop growth stages are as follows: Emergence to Training: Apply 1.47-2.94 tbsp. per 1000 sq. ft. using a minimum spray volume of 20 gallons per acre. Coverage will vary with the size of the vines and the type of spray equipment. Apply adequate spray volume to achieve complete spray coverage. Training to Wire-Touch: Apply 1.47-2.94 tbsp. per 1000 sq. ft. using a minimum spray volume of 1.15 gallons of water per 1000 sq. ft.. Coverage will vary with the size of the vines and the type of spray equipment. Apply adequate spray volume to achieve complete spray coverage. Wire-touch through Harvest: Apply 2.94-5.88 tbsp. of this product using a minimum of 2.3 gallons of water per 1000 sq. ft.. Higher water volumes may be necessary to achieve thorough coverage after side arms develop. Do not apply more that 5.88 tbsp. of product per 1000 sq. ft. per application. Apply adequate spray volume to achieve complete spray coverage. Use the higher rates when moderate to high disease pressure is present or expected. For control of downy mildew, tank mix this product with another fungicide labeled for Downy Mildew control and re-apply at a 7-day interval or according to the label directions of the tank mix ingredient.

Crop	Target Disease	Application Instructions
Leafy Vegetable Crops	Downy Mildew *(Bremia lactucae)* *(Peronospora* spp.) Bacterial Blight/Rot (*Xanthomonas* spp.) Early Blight of celery (*Cercospora apii*) Late Blight *(Septoria apiicola)* Powdery Mildew *(Erysiphe cichoracearum)* Sclerotinia Head and Leaf Drop *(Sclerotinia minor)* *(Sclerotinia sclerotiorum)*	**0.32-5.88 tbsp. per 1000 sq. ft for FOLIAR (GROUND) applications** For ground applications, apply this product in 0.58-2.3 gallons per 1000 square feet in a 0.5%-1.0% v/v applied solution. For concentrated ground applications, apply this product at 0.32-0.96 tbsp. per 1000 sq. ft. in a minimum of 0.23 gallon of water per 1000 sq. ft. Repeat applications at 5-10 day intervals.
Restrictions: Do not apply REGALIA CG® Biofungicide when extended/unseasonably cold or cold and cloudy conditions are expected. REGALIA CG® Biofungicide should not be applied when night-time temperatures will fall below 45°F and relative humidity is predicted to be above 80%. Applications during daylight hours are preferred over night-time applications.		

Crop	Target Disease	Application Instructions
Legume Vegetables	Bacterial Blight *(Xanthomonas campestris)* Gray Mold *(Botrytis cinerea)* Pythium (aerial blight phase) (*Pythium* spp.) Powdery Mildew (*Erysiphe* spp.) White Mold *(Sclerotinia sclerotiorum)*	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR applications** For foliar applications, apply this product preventatively in 0.46-2.3 gallons of water per 1000 square feet. For improved performance, use this product in a tank mix or rotational program with another registered fungicide. Repeat applications at 7–10 day intervals.

Crop	Target Disease	Application Instructions
Ornamentals	Anthracnose (*Colletotrichum* spp.) Bacteria (*Erwinia* spp.), (*Pseudomonas* spp.), (*Xanthomonas* spp.) Blossom Blight (*Monilinia* spp.) Downy Mildew (*Peronospora* spp.), (*Plasmopara viburni*) Gray Mold (*Botrytis cinerea*) Leaf Spot (*Alternaria* spp.), (*Cercospora* spp.), (*Entomospo-rium* spp.), (*Myrothecium* spp.), (*Septoria* spp.) Powdery Mildew (*Erysiphe* spp.), (*Oidium* spp.), (*Podosphaera* spp.), (*Sphaerotheca* spp.)	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR applications** For foliar applications, mix this product concentrate with water at a concentration of 1.28-2.56 tbsp. per gallon of water when used alone or 0.64-2.56 tbsp. per gallon of water when tank mixed with another fungicide. Begin applications preventatively (before disease symptoms become visible) at the 4 to 6-leaf stage and treat at 7–10 day intervals as needed prior to sale or harvest. Spray until just before point of runoff. This product may be used to control certain diseases of container, bench, flat, plug, bed, or field-grown ornamentals in **greenhouses, shade-houses, outdoor nurseries, retail nurseries,** and other **landscape areas.** Since it is not possible to test all ornamental species or varieties grown in the greenhouse, test REGALIA CG® Biofungicide on a few plants prior to large-scale usage.

Crop	Target Disease	Application Instructions
Pome Fruits	Powdery Mildew *(Podosphaera leucotricha)* Alternaria Blotch *(Alternaria mali)* Apple Scab *(Venturia inaequalis)*- Suppression only Bitter Rot (*Colletotrichum* spp.) Cedar-Apple Rust *(Gymnosporangium juniperi-virginianae)*- Suppression only Fire Blight *(Erwinia amylovora)*- Suppression only Flyspeck *(Zygophiala jamaicensis)* Sooty Blotch *(Geastrumia polystigmati)* *(Leptodontium elatius)* *(Peltaster fructicola)* White Rot *(Botryosphaeria dothidea)*	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR applications** For foliar applications, apply this product in 1.15-2.3 gallons of water per 1000 square feet. Do not exceed 1.0% v/v of the applied solution. Repeat applications on 7–10 day intervals. Additional sprays beyond second cover may be needed on susceptible varieties, or when environmental conditions are conducive to rapid disease development. Use high label rate and shorter spray intervals when conditions are conducive to rapid disease development. Use caution when selecting spray adjuvants. Select only those adjuvants which through prior experience do not affect fruit finish when combined with this product. Avoid excessive amounts of water that result in the runoff of spray material. Fire Blight – For suppression, apply 1quart of this product in 1.15 – 2.3 gallons of water per 1000 square feet at green tip through bloom. Following bloom, this product can be applied at 2.94 – 5.88 tbsp. per 1000 sq. ft.. For maximum control, use this product prior to infection events. During periods of rapid development and frequent infection periods, use spray intervals of 3–7 days. Apply in sufficient water to provide full coverage. For improved performance, use this product in a rotational program with copper or antibiotics registered for Fire Blight control such as but not limited to oxytetracycline or streptomycin. Proper orchard cultural practices are essential to eliminate Fire Blight-infected tissue from the orchard to assure good performance of any crop protection product. Remove and destroy dead and diseased wood from the orchard prior to and during the growing season. Scab – For suppression, apply 1 quart of this product in1.15 – 2.3 gallons of water per 1000 square feet at green tip and through bloom when environmental conditions become favorable for primary Scab development and repeat on a 7–10 day interval or as needed. Use this product in a tank mix or rotational program with other fungicides labeled for Scab control. Following bloom, this product can be applied at 2.94 – 5.88 tbsp. per 1000 sq. ft..
Some sensitive tree fruit varieties have exhibited petal staining and/or necrosis after application of higher use rates. To minimize petal staining and/or necrosis: • Use adjuvants that improve coverage, not penetration; follow the manufacturer's mixing instructions. • Use adjuvants that through prior experience do not affect petal integrity when combined with this product. • Apply 1.47 tbsp. in 1.15 gallons to 2.3 gallons of water per 1000 sq. ft. in: Pome Fruit, from 10% bloom to full bloom.		

Crop	Target Disease	Application Instructions
Root, Tuber and Corm Crops (including those for seed production)	Bacterial Leaf Blight *(Xanthomonas campestris)* Early Blight *(Alternaria solani)*	**1.47-5.88 tbsp. per 1000 sq. ft for FOLIAR applications** For foliar applications, apply this product in 0.58-2.3 gallons of water per 1000 square feet sufficient to provide thorough coverage. Do not exceed 1.0% v/v of the applied solution. Begin application soon after emergence or transplant, and when conditions are conducive to disease development. Repeat on a 7–10 day interval or as needed. Use shorter intervals when conditions are conducive to rapid disease development. For suppression of Early Blight, Black Root Rot/Black Crown Rot, and Late Blight, begin application of this product in 0.58 – 2.3 gallons of water per 1000 square feet soon after emergence when conditions are conducive to disease development. Repeat on a 5–7-day interval or as needed. For improved performance, use this product in a tank mix with other registered fungicides.

Crop	Target Disease	Application Instructions
Stone Fruits	Brown Rot Blossom Blight *(Monilinia laxa)* Brown Rot Fruit Rot *(Monilinia fruticola)* Powdery Mildew *(Podosphaera spp.) (Sphaerotheca pannosa)* Shot Hole *(Wilsonomyces carpophilus)*	**1.47 – 5.88 tbsp. per 1000 sq. ft.) for FOLIAR applications** For foliar applications, apply this product preventatively in 1.15 – 2.3 gallons of water per 1000 square feet. Do not exceed 1.0% v/v of the applied solution. Apply 1.47 tbsp. in 1.15 gallons or 2.94 tbsp. in 2.3 gallons of water per 1000 sq. ft.from pink bud through bloom. Bacterial Blight – Apply this product in 1.15 – 2.3 gallons of water per 1000 square feet postharvest before fall rains. Brown Rot Blossom Blight – Begin application of this product in 1.15 – 2.3 gallons of water per 1000 square feet at early bloom, and repeat through petal fall on a 7-day interval or as needed. Powdery Mildew – Begin application of this product in 1.15 – 2.3 gallons of water per 1000 square feet at popcorn stage, and repeat on a 7-day interval or as needed. For improved performance, use this product in a tank mix or rotational program with other registered fungicides for powdery mildew control. For all other diseases – Begin application prior to disease development when environmental conditions and plant stage are conducive to rapid disease development, and repeat on a 7–10 day interval or as needed. Use in a tank mix or rotational program when disease conditions are severe.
Some sensitive tree fruit varieties have exhibited petal staining and/or necrosis after application of higher use rates. To minimize petal staining and/or necrosis: • Use adjuvants that improve coverage, not penetration; follow the manufacturer's mixing instructions. • Use adjuvants that through prior experience do not affect petal integrity when combined with this product. • Apply 1.47 tbsp. in 1.15 gallons to 2.3 gallons of water per 1000 sq. ft. in: -Cherries, from white bud (first white, popcorn) to full bloom, -Stone fruit, from 10% bloom to full bloom.		

Crop	Target Disease	Application Instructions
Strawberry	Anthracnose (*Colletotrichum* spp.)- Suppression only Botrytis *(Botrytis cinerea)* Powdery Mildew *(Sphaerotheca macularis)*	**1.47 – 5.88 tbsp. per 1000 sq. ft. FOLIAR applications** For foliar applications, apply this product preventatively in 1.15 – 2.3 gallons of water per 1000 square feet at 7 day spray intervals or as soon as first symptoms of disease appear. Do not exceed 1.0% v/v of the applied solution. Anthracnose – For suppression, apply this product preventatively in 1.15 – 2.3 gallons of water per 1000 square feet and repeat on a 7-day interval or as needed. For best performance, tank mix this product with other registered fungicides for Anthracnose control.
	Colletotrichum Crown Rot* (*Colletotrichum* spp.) Phytophthora Root Rot and Crown Rot (*Phytophthora* spp.) Verticillium Wilt (*Verticillium* spp.)	**0.64 – 2.56 tbsp. per gallon of water for PLANT DIP applications** For plant dip applications for improved plant growth and suppression of soil-borne diseases, apply this product in a 0.25–1% v/v suspension (0.64 – 2.56 tbsp. per gallon of water) as a pre-plant dip to strawberry plants, roots and crowns immediately prior to transplanting.
	Colletotrichum Crown Rot* (*Colletotrichum* spp.) Phytophthora Root Rot and Crown Rot (*Phytophthora* spp.) Verticillium Wilt (*Verticillium* spp.)	**0.64 – 1.92 tbsp. per gallon of water for SOIL DRENCH applications** For soil drench applications, apply this product at a concentration of 0.64 – 1.92 tbsp. per gallon of water, and at a sufficient rate to thoroughly soak the growing media and root zone. Make an initial application of this product during or shortly after transplant to reduce transplant shock, suppress soil-borne diseases and improve root growth. Multiple drench applications can be made on a 10–14 day interval.
	Colletotrichum Crown Rot* (*Colletotrichum* spp.) Phytophthora Root Rot and Crown Rot (*Phytophthora* spp.) Verticillium Wilt (*Verticillium* spp.)	**1.47 – 5.88 tbsp. per 1000 sq. ft for CHEMIGATION applications** For chemigation applications for improved plant growth and suppression of soil-borne diseases, apply this product through drip irrigation at the rate of 1.47 – 5.88 tbsp. per 1000 sq. ft. immediately after transplant and at 14-day intervals or begin 14 days after transplant when plant dip or soil drench applications are used.
* Not for use in California		

Crop	Target Disease	Application Instructions
Tobacco	Blue Mold *(Peronospora tabacina)* Target Spot *(Rhizoctonia solani)*	**1.47 – 5.88 tbsp. per 1000 sq. ft. FOLIAR applications** For foliar applications, apply this product at a rate of 2.94 – 5.88 tbsp. per 1000 sq. ft. when applied alone, or at 1.47 – 5.88 tbsp. per 1000 sq. ft. when tank mixed with another fungicide preventatively in a minimum of 1.15 gallons of water per 1000 square feet. Avoid excessive amounts of water that result in spray material dripping from the foliage. If necessary, repeat applications at a 7-day interval. Foliar applications of REGALIA CG® Biofungicide to improve plant health can be made during the period from layby to contact sprays.

Crop	Target Disease	Application Instructions
Tree Nut Crops	Walnut Blight *(Xanthomonas campestris)* Alternaria Late Blight, Alternaria Leaf Spot *(Alternaria* spp.) Anthracnose (*Colletotrichum* spp.) *(Gnomonia leptostyla)* Bacterial Canker *(Erwinia nigrifluens)* *(Pseudomonas syringae)* Botryosphaeria Blight *(Botryosphaeria dothidea)* Brown / Hull Rot (*Monilinia* spp.) Eastern Filbert Blight *(Anisogramma anomala)* Green Fruit Rot *(Botrytis cinerea)* Shot Hole *(Wilsonomyces carpophilus)*	**1.47 – 5.88 tbsp. per 1000 sq. ft. FOLIAR (GROUND) applications** For ground applications, apply this product in 1.15 – 2.3 gallons of water per 1000 square feet. Do not exceed 1.0% v/v of the applied solution. This product can be tank mixed at the lower rate with another registered fungicide under heavy disease pressure. Avoid excessive amounts of water that result in the runoff of spray material. Walnut Blight – Under conditions of heavy disease pressure, tank mix this product with a copper-based fungicide.
Some tree nut varieties have exhibited petal staining and/or necrosis after application of higher use rates. To minimize petal staining and/or necrosis: • Use adjuvants that improve coverage, not penetration; follow the manufacturer's mixing instructions. • Use adjuvants that through prior experience do not affect petal integrity when combined with this product. • Apply 1.47 tbsp. in 1.15 gallons or 1.28 tbsp. in 2.3 gallons of water per 1000 sq. ft. from pink bud through bloom. • Apply 1.47 tbsp. in 1.15 gallons to 2.3 gallons of water per 1000 sq. ft. from 10% bloom to full bloom.		

Crop	Target Disease	Application Instructions
Tropical Fruits	Anthracnose *(Colletotrichum gloeosporioides)* Bacterial Blight *(Pseudomonas syringae)* *(Pseudomonas viridiflava)* Bacterial Canker *(Xanthomonas campestris)* Botrytis Fruit Rot *(Botrytis cinerea)* Scab *(Elsinoe mangiferae)* Sigatoka *(Mycosphaerella fijiensis)*	**1.47 – 5.88 tbsp. per 1000 sq. ft. FOLIAR (GROUND) applications** For ground applications, apply this product preventatively in 1.15 – 2.3 gallons of water per 1000 square feet. Do not exceed 1.0% v/v of the applied solution. Repeat applications at 7–14 day intervals. Avoid excessive amounts of water that result in the runoff of spray material. Sigatoka – Initiate applications when leaves first appear and repeat on a 7–10 day schedule. Apply in sufficient water by ground or air to obtain thorough coverage of foliage. For improved disease control, this product may be tank-mixed with oil or other fungicides registered for Sigatoka control at label rates.

INTEGRATED PEST MANAGEMENT (IPM)

Many conventional fungicides have been tested in an IPM regime with REGALIA CG® Biofungicide with very satisfactory results. One of the major objectives of IPM has been to reduce the probability of disease resistance development to a particular active ingredient.

The alternate use of (1–2 sprays) followed by a conventional, registered fungicide (1–2 sprays) has been successfully used in many crops. In addition, the use of tank mixes with a conventional fungicide has also been successful.

Follow label instructions of the particular registered product: Do not exceed amounts or treatment intervals on the label.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

Pesticide Storage: Store in a cool, dry place. Avoid freezing.

Pesticide Disposal: To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

Container Handling (5 gallons or less): Non-refillable 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 1/4 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. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration. Do not burn unless allowed by state and local ordinances.

Container Handling (over 5 gallons): Non-refillable container. Do not reuse or refill this container. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. 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 the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill or by incineration. Do not burn unless allowed by state and local ordinances.

Container Handling (refillable containers – 265 gallon tote): 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 mix tank. Fill the container about 10% full with 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. When empty, return to point of sale or offer for recycling if available or reconditioning if appropriate.

Marrone Bio Innovations is a member of the Ag Container Recycling Council. Visit http://www.acrecycle.org/contact.html for information on how to arrange pick-up of this empty pesticide container.

ACRC

WARRANTY

To the extent permitted by applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. To the extent permitted by applicable law, the user assumes all risks of use, storage or handling that are not in strict accordance with the accompanying directions.

Repackaging or relabeling of this product without express written permission of Marrone Bio Innovations is prohibited.

Label date: November 2017
Made in the U.S.A.
US Patent No. 5,989,429
REGALIA CG® is a registered trademark of Marrone Bio Innovations, Inc.
Marrone Bio Innovations' name and logo are registered trademarks of Marrone Bio Innovations, Inc.

1540 Drew Ave., Davis, CA 95618
1-877-664-4476
info@marronebio.com

GRANDEVO® CG

BIOINSECTICIDE

Active Ingredient:

Chromobacterium subtsugae strain PRAA4-1^T and spent fermentation media*	30.0%
Other Ingredients:	70.0%
Total:	100.0%

*Contains not less than 1,000 Cabbage Looper Killing Units (CLKU)/mg.

Note: The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID	
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER Have the product container or label with you when calling a poison control center or doctor, or when going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.	

EPA Reg. No.: 84059-27

CAN BE USED IN ORGANIC PRODUCTION

Manufactured for:
Marrone Bio Innovations
1540 Drew Ave., Davis, CA 95618 USA
1-877-664-4476; info@marronebio.com

OMRI® LISTED
For Organic Use

Lot No: Printed on packaging

PN 61608

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- waterproof gloves
- shoes plus socks
- protective eyewear
- A NIOSH-approved particulate respirator with any R or P filter with NIOSH approval number prefix TC-84A; or a NIOSH-approved powered air purifying respirator with an HE filter with NIOSH approval number prefix TC-21C. (Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.)

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables are available, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls: 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.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment breakdown.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- 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.

ENVIRONMENTAL HAZARDS

This product is toxic to aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

This product is toxic to certain nontarget terrestrial arthropods. Minimize spray drift away from target area to reduce effects to nontarget insects.

This product is toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product if bees are visiting the treatment area.

For terrestrial uses: Do not apply directly to water, or 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.

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 requirements specific to your State or 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, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and 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. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.

PPE required for early entry to treated areas (that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water) is:

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Protective eyewear

EXCEPTION: If the product is soil incorporated or soil injected, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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 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.

Keep unprotected persons out of treated areas until sprays have dried.

PRODUCT INFORMATION

GRANDEVO CG is a biological insecticide/miticide containing cells of *Chromobacterium subtsugae* strain PRAA4-1^T and spent fermentation media, for use on ornamental plants, turf and edible crops against the pests listed in the **APPLICATION RATES FOR SELECTED CROPS** section. GRANDEVO CG functions primarily as a stomach poison for use in the control or suppression of many foliar-feeding pests, including caterpillars, and certain Coleoptera. GRANDEVO CG has multiple effects, including reducing fecundity and oviposition, deterring feeding and acting as a stomach poison on Homoptera and Hemiptera, such as aphids, psyllids, whiteflies, *Lygus*, mealybugs, thrips, certain fruit flies, and phytophagous mites infesting labeled crops or use sites. GRANDEVO CG must be mixed with water and applied as a foliar spray with ground equipment equipped for conventional pesticide spraying or by chemigation. GRANDEVO CG can be used in the field, in hoop houses, or in greenhouses for the control or suppression of any labeled pest.

GROUND APPLICATIONS

Apply GRANDEVO CG in ground equipment with quantities of water sufficient to provide thorough coverage of infested plant parts. The amount of water needed per acre will depend upon crop development, weather, application equipment, and local experience.

Do not spray when wind speed favors drift beyond the area intended for use.

Avoiding spray drift is the responsibility of the applicator.

Mixing directions

Important - Do not add GRANDEVO CG to the tank mix before introducing 3/4 of the desired amount of water. Add water to the mix tank. Start the mechanical or hydraulic agitation to provide moderate circulation before adding GRANDEVO CG. Add the desired volume of GRANDEVO CG to the mix tank and continue circulation while adding the remainder of the water. Maintain circulation while loading and spraying. Do not mix more GRANDEVO CG than is needed for immediate use. Do not let the spray mixture stand overnight in the spray tank. Use a strainer no finer than 50 mesh in conventional spray systems.

Spray volume

For conventional ground applications, use at least 10 gallons of total volume per acre (0.23 gallon per 1000 sq. ft.) in water-based sprays. Use a minimum of 50 gallons per acre (GPA) carrier volume (1.15 gallons per 1000 sq. ft.) for all established orchard and vine crops. For concentrated ground applications, use at least 10 gallons of carrier volume (0.23 gallon per 1000 sq. ft.) for all labeled crops.

Tank mixing

Do not combine GRANDEVO CG in the spray tank with other pesticides, surfactants, adjuvants, or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective, and non-injurious under your use conditions. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

To ensure compatibility of tank mix combinations, they must be evaluated prior to use. To determine the physical compatibility of this product with other products, use a jar test. Using a quart jar, add the proportionate amounts of the products to one quart of water with agitation. Add dry formulations first, then flowables, and then emulsifiable concentrates last. After thoroughly mixing, let this mixture stand for 5 minutes. If the combination remains mixed or can be readily remixed, it is physically compatible. Once compatibility has been proven, use the same procedure for adding required ingredients to the spray tank.

CHEMIGATION USE DIRECTIONS

Spray preparation

First, prepare a suspension of GRANDEVO CG in a mix tank. Fill tank with ¾ of the amount of water for the area to be treated. Start mechanical or hydraulic agitation. Add the required amount of GRANDEVO CG, and then the remaining volume of water. Then, set the system to deliver a minimum of 0.1 to 0.3 inch of water per acre (1000 sq. ft.). Start system and uniformly inject the suspension of GRANDEVO CG into the irrigation water line so as to deliver the desired rate of GRANDEVO CG per acre (1000 sq. ft.). Inject the suspension of GRANDEVO CG with a positive displacement pump into the main line ahead of a right angle turn to ensure adequate mixing. GRANDEVO CG is to be metered continuously for the duration of the water application.

Do not combine GRANDEVO CG with other pesticides, surfactants, adjuvants, or fertilizers for application through chemigation equipment unless prior experience has shown the combination to be physically compatible, effective and non-injurious under your conditions of use.

General Requirements -

1) Apply this product only through sprinkler, including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move, or drip (trickle) irrigation systems. Do not apply this product through any other type of irrigation system.
2) Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
3) If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.
4) Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
5) 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.

Specific Requirements for Chemigation Systems Connected to Public Water Systems -

1) 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.
2) Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) 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 physical break (air gap) between the flow outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.
3) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4) 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.
5) 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 pesticide distribution is adversely affected.
6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7) Do not apply when wind speed favors drift beyond the area intended for treatment.

Specific Requirements for Sprinkler Chemigation -

1) 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 backflow.
2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3) 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.
4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5) 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.
6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
7) Do not apply when wind speed favors drift beyond the area intended for treatment.

Specific Requirements for Drip (Trickle) Chemigation -

1) 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 backflow.
2) The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3) 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.
4) The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5) 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.
6) Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Application Instructions for All Types of Chemigation -

1) Remove scale, pesticide residues, and other foreign matter from the chemical supply tank and entire injector system. Flush with clean water. Failure to provide a clean tank, void of scale or residues, may cause product to lose effectiveness or strength.
2) Determine the treatment rates as indicated in the directions for use and make proper dilutions.
3) Prepare a solution in the chemical tank by filling the tank with the required water and then adding product as required. Utilize agitation to keep solution in suspension.

Application Instructions for Drip Chemigation -

1) Check to be sure that the system provides a uniform waterflow.
2) Irrigate crop with sufficient water to wet the root zone. Then, begin flow of the solution containing product solution from the chemical tank for a period to uniformly distribute the material. Discontinue flow of the GRANDEVO CG mixture and let the system continue to run only as necessary to purge the line with fresh water. Let the GRANDEVO CG solution remain in the root zone of the crop.

USE INSTRUCTIONS

GRANDEVO CG is a biological insecticide/miticide for use against listed insects and mites. Close scouting and early attention to infestations is highly recommended. For insects and mites, proper timing of application targeting new populations or recently hatched larvae and nymphs is important for optimal results. Applying GRANDEVO CG when pest populations are low is recommended.

For insects and mites, thorough coverage of infested plant parts is necessary for effective control or suppression. GRANDEVO CG does not have systemic activity. For some crops, directed drop nozzles by ground machine are required.

Under heavy pest populations, apply a knockdown insecticide prior to or in a tank mix with GRANDEVO CG, use the higher label rates, shorten the spray interval, and/or increase the spray volume to improve coverage.

Repeat applications at an interval sufficient to maintain control or suppression, depending upon plant growth rate, insect and mite activity, and other factors. If attempting to control or suppress an insect population with a single application, make the treatment when egg hatch is essentially complete but when larvae or nymphs are young and before economic damage occurs.

To enhance population management, consider tank mixing with contact insecticides/miticides. Use the lower label rates of GRANDEVO CG when populations are low and when tank mixing with other insecticides/miticides. Use the higher rates of GRANDEVO CG when applied stand-alone, when populations are high or when egg numbers are high.

For hard-to-wet crops, consider using a spreader/sticker or adjuvant, which has been approved for use on the targeted crop, to enhance coverage and adhesion of GRANDEVO CG to the crop.

GRANDEVO CG has been evaluated for phytotoxicity on a variety of crops under various normal growing conditions. However, testing all crop varieties, in all mixtures and combinations, is not feasible. Prior to treating an entire crop, test a small portion of the crop for sensitivity.

GENERAL SPRAY CONSIDERATIONS

GRANDEVO CG performs best under certain conditions. To preserve product spray characteristics and overall efficacy, consider the following spray parameters:

Tank-Mixing

GRANDEVO CG does not have ovicidal activity. When significant insect or mite population or eggs are present, consider tank mixing with a complementary ovicidal/contact insecticide.

pH

To maintain product properties, the pH of the mixed spray solution should be between 6-8, with the most desirable level being neutral.

Water Hardness

If you know or suspect you have hard water, add ammonium sulfate (AMS) at levels of 1-2% (w/w) or 8.5 to 17 pounds per 100 gallons of water to help maintain efficacy. Add AMS together with GRANDEVO CG or add it to the water and thoroughly dissolve before adding GRANDEVO CG. Conduct a spray test to determine if your crop/variety is compatible with these AMS levels before adding GRANDEVO CG to the tank for spraying. For organic production, use an approved water conditioner to address suspected hard water.

Adjuvants/Carrier Volume

Avoid carrier volumes and/or adjuvants alone or in combinations that result in spray runoff or a drip accumulation.

Some adjuvants have been shown to increase or decrease the effectiveness of GRANDEVO CG. Use of a quality adjuvant or crop oil is highly recommended.

APPLICATION RATES FOR SELECTED CROPS

For greenhouse applications on the crops and pests listed, use 1-3 pounds of GRANDEVO CG in 100 gallons of water (or 0.62-1.85 tbsp. per gallon) sprayed until just before point of runoff.

See specific application rates for each crop for additional details on greenhouse applications and for all other application types.

FOR USE ON THE FOLLOWING CROPS FOR CONTROL OR SUPPRESSION OF SPECIFIED INSECTS AND MITES:

Pre-harvest Interval (PHI) = 0 days

Artichoke (Globe)

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Armyworms, artichoke plume moth, and loopers

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Aphids and whiteflies

Asparagus

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Aphids, armyworms, asparagus beetle, cutworms, and spotted asparagus beetle

Asparagus beetle and spotted asparagus beetle: Apply when adults or larvae are seen feeding on new spears and during the fern stage when field counts or crop injury indicate damaging populations.

Suppression – Stink bugs. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression of stink bugs.

Bananas

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Banana skipper, banana rust thrips, and Hawaiian flower thrips

Suppression – Stink bugs. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression of stink bugs.

Bedding Plants – Ground application only to non-blooming plants

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Loopers, tobacco budworm, omnivorous looper, omnivorous leafroller, diamondback moth, armyworms, ello moth, lo moth, oleander moth, and azalea caterpillar

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Whiteflies, aphids, thrips, azalea lace bug, *Lygus*, and mites

Brassica (Cole) Leafy Vegetables

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Diamondback moth, cabbage looper, imported cabbageworm, cabbage webworm, cross-striped cabbageworm, beet armyworm, armyworms, light brown apple moth, and cutworms

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Whiteflies, thrips, aphids, leafhoppers, plant bugs, mites, billbugs, and yellow-margined leaf beetle larvae

Yellow-margined leaf beetle larvae – Apply to newly hatched to 2nd instar. If adult beetles are also present, tank mix with a knockdown insecticide.

Suppression – Flea beetles, stink bugs, and bagrada bug. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Bulb Vegetables

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Loopers, omnivorous leafroller, hornworm, imported cabbageworm, diamondback moth, green cloverworm, webworms, saltmarsh caterpillar, armyworms, cutworms, cross-striped cabbageworm, *Heliothis*, European corn borer, and leek moth

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Suppression – Aphids and thrips.

Bushberries

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Armyworms, cherry fruitworm, cranberry fruitworm, fireworms, leafrollers, and loopers

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Aphids, thrips, blueberry maggot, spotted wing drosophila, and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Stink bugs, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Caneberries

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Beet armyworm, bertha armyworm, green fruitworm, leafrollers, loopers, western raspberry fruitworm, and armyworms

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Aphids and thrips

Spotted wing drosophila and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Stink bugs, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Citrus Fruit

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Fruit tree leafroller, orangedog, citrus cutworm, and citrus leafminer

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Aphids, two-spotted spider mite, Texas citrus mite, citrus red mite, citrus rust mite, six-spotted spider mite, Asian citrus psyllid, citrus whitefly, cloudy-winged whitefly, citrus blackfly, citrus thrips, mealybugs, and glassy-winged sharpshooter

California red scale and Florida red scale – Make a minimum of two applications of GRANDEVO CG per generation, targeting the crawler stage.

Spotted wing drosophila and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG drosophila as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Stink bugs, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Cucurbit Vegetables

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Armyworms, cabbage looper, melonworm, pickleworm, rindworm complex, corn earworm, and cutworms

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Whiteflies, aphids, thrips, and mites

Spotted wing drosophila and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Cucumber beetle, stink bugs, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Fig

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Navel orangeworm

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Aphids and thrips

Spotted wing drosophila and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Stink bugs, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Flowering Plants – Ground application only to non-blooming plants

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Loopers, tobacco budworm, omnivorous looper, omnivorous leafroller, diamondback moth, armyworms, ello moth, lo moth, oleander moth, and azalea caterpillar

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Whiteflies, aphids, thrips, azalea lace bug, *Lygus*, and mites

Fruiting Vegetables

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Loopers, hornworms, tomato fruitworm, variegated cutworm, saltmarsh caterpillar, armyworms (including beet and yellow-striped), tomato pinworm, and European corn borer

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Colorado potato beetle larvae – Apply to newly hatched to 2nd instar larvae. If adult beetles are also present, tank mix with a knockdown insecticide.

Aphids, mites, *Lygus*, whiteflies, plant bugs, psyllids, and thrips

Spotted wing drosophila and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Pepper weevil, stink bugs, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression. Use pheromone traps to time applications of GRANDEVO CG for management of pepper weevil.

Grape, Amur River Grape, Gooseberry, Kiwifruit, Maypop and Schisandra Berry

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Grape leaf skeletonizer, grape leafroller, omnivorous leafroller, orange tortrix, obliquebanded leafroller, grape berry moth, and light brown apple moth

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Pacific spider mite, Willamette spider mite, two-spotted spider mite, leafhoppers, mites, mealybugs, glassy-winged sharpshooter, whiteflies, and thrips

Spotted wing drosophila and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Stink bugs, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Herbs and Spices

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Loopers, saltmarsh caterpillar, and armyworms

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Aphids, thrips, whiteflies, and mites

Hops and Dried Cones

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Armyworms and loopers

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Hops aphid, thrips, whiteflies, and mites

Leafy Vegetables

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Cabbage looper, diamondback moth, armyworms, loopers, cutworm species, green cloverworm, and tobacco budworm

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Aphids, whiteflies, thrips, psyllids, and mites

Suppression – Stink bugs. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression of stink bugs.

Leaves of Root and Tuber Vegetables

Beets and Turnips

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Cabbage looper, diamondback moth, and armyworms

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Aphids, whiteflies, and psyllids

Suppression – Stink bugs. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression of stink bugs.

Legume Vegetables (Succulent or Dried) and Legume Grain Crops

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Armyworms, corn earworm, green cloverworm, loopers, podworms, cabbage looper, soybean looper, and velvetbean caterpillar

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Aphids, mites, leafhoppers, whiteflies, and thrips

Spotted wing drosophila and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Bean leaf beetle, Mexican bean beetle, stink bugs, kudzu bug, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Ornamental Plants – Ground application only to non-blooming plants

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Loopers, tobacco budworm, omnivorous looper, omnivorous leafroller, diamondback moth, armyworms, ello moth, lo moth, oleander moth, and azalea caterpillar

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Whiteflies, aphids, thrips, azalea lace bug, *Lygus*, and mites

Pineapple

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Gummosis-Batrachedra Comosae (Hodges) and *Thecla-Thecla Basilides* (Geyer)(fruit borer)

Pome Fruit*

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet

Leafrollers (including fruittree, obliquebanded, red-banded, and variegated), codling moth, oriental fruit moth, tufted apple budmoth, and light brown apple moth

Application timing: Optimal timing for leafrollers, codling moth, and oriental fruit moth can vary between species and geographic locations. Monitor moth flights with pheromone traps and scout regularly to determine larval populations. GRANDEVO CG can be used to supplement mating disruption programs.

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Aphids, mealybugs, pear psylla, thrips, whiteflies, and mites

Rosy apple aphid – Make an initial application at the pink stage of bloom. Additional applications may be necessary to maintain control.

San Jose scale – Make a minimum of two applications of GRANDEVO CG per generation targeting the crawler stage.

Spotted wing drosophila, apple maggot, and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Stink bugs, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

*Some sensitive pome fruit varieties have exhibited fruit spotting as a result of application. Spray a test strip to confirm your variety is not susceptible to spotting before spraying the entire orchard. Avoid carrier volumes and/or adjuvants alone or in combinations that result in spray runoff or a drip accumulation on fruit bottoms.

Pomegranate

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Armyworms, cankerworms, codling moth, cutworms, filbert leafroller, fruittree leafroller, gypsy moth, obliquebanded leafroller, oriental fruit moth, red-banded leafroller, tufted apple budmoth, twig borer, variegated leafroller, and walnut caterpillar

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
European red mite, McDaniel spider mite, Pacific spider mite, and two-spotted red mite

Spotted wing drosophila and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Stink bugs, Japanese beetles, leaf-footed plant bugs, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Root and Tuber Vegetables

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Armyworms, artichoke plume moth, European corn borer, and loopers

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Aphids, potato aphid, potato leafhopper, psyllids (including potato psyllid), and whiteflies

4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Suppression - Colorado potato beetle larvae – Apply to newly hatched to 2nd instar larvae. If adult beetles are also present, tank mix with a knockdown insecticide. Heavy infestations may require repeat application. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Suppression – Stink bugs. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression of stink bugs.

Stone Fruits

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Green fruitworm, leafrollers (including obliquebanded, fruittree, pandemic, red-banded, and variegated), oriental fruit moth, redhumped caterpillar, tent caterpillar, and peach twig borer

Application timing: Optimal timing for peach twig borer and leafrollers can vary between species and geographic locations. Monitor moth flights with pheromone traps and scout regularly to determine larval populations. GRANDEVO CG can be used to supplement mating disruption programs.

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Aphids, mealybugs, thrips, whiteflies, and mites

San Jose scale and white peach scale - Make a minimum of two applications of GRANDEVO CG per generation targeting the crawler stage.

Spotted wing drosophila and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Stink bugs, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Strawberry

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Armyworms, leafrollers, and cutworms

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Aphids, *Lygus*, mites, thrips, and whiteflies

Spotted wing drosophila and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Stink bugs, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

For foliar applications, exceeding water volumes of 2.3 gallons per 1000 sq. ft. may result in reduced product efficacy.

Tobacco

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Hornworms, tobacco budworm, and loopers

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Aphids, thrips, whiteflies, and mites

Tree Farms and Plantations

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Bagworm, fall webworm, gypsy moth, hemlock looper, jack pine budworm, pine tip moth, redhumped caterpillar, spruce budworm, tent caterpillar, and tussock moths

2.8 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Cottonwood leaf beetle - Apply to newly hatched to 2nd instar larvae. If adult beetles are also present, tank mix with a knockdown insecticide. Heavy infestations may require repeat applications.

Tree Nuts

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Fall webworm, filbert worm, navel orange worm, obliquebanded leafroller, peach twig borer, pecan nut casebearer, and redhumped caterpillar

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Aphids, codling moth, mealybugs, whiteflies, mites, and walnut husk fly

San Jose scale and walnut scale - Make a minimum of two applications of GRANDEVO CG per generation targeting the crawler stage.

4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Pecan weevil

Tropical and Subtropical Fruit

1.40 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Avocado leafroller, citrus peelminer, cutworms, fruittree leafroller, omnivorous leafroller, orange tortrix, and western tussock moth

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Aphids, thrips, and whiteflies

Spotted wing drosophila and fruit flies – Begin applications as soon as adult flies are active and continue until adult activity is no longer present. Use GRANDEVO CG as part of an integrated management program for control of spotted wing drosophila that includes tank mixes and rotation with other products labeled for control of spotted wing drosophila. During periods of adult fly activity, make applications on no more than a 7-day interval and more frequently if necessary to maintain control.

Suppression – Stink bugs, Japanese beetles, and flea beetle. Tank mix GRANDEVO CG with a contact insecticide for control or improved suppression.

Turf, Including Grass Grown for Seed, Lawns and Recreational Turf

2.79 to 4.19 Tablespoons of GRANDEVO CG per 1,000 square feet
Armyworms, cutworms, and sod webworms

8.38 Tablespoons of GRANDEVO CG per 1,000 square feet
Chinch bug and leafhoppers

13.95 to 27.9 Tablespoons of GRANDEVO CG per 1,000 square feet
White grubs (such as larvae of, black turfgrass ataenius, European chafer, green June beetle, *Aphodius* spp., May or June beetles (*Phyllophaga* spp.), northern and southern masked chafers (*Cyclocephala* spp.), and sugarcane grub (*Tomarus* spp.)). Apply GRANDEVO CG soon after egg hatch when grubs are 1st or 2nd instar.

Mix specified dosage of GRANDEVO CG in sufficient water to provide thorough coverage of turf. For control of white grubs and annual bluegrass weevils, a minimum of 100 gallons of water per acre or 300 fluid ounces of water per 1,000 square feet (or 2.3 gallons of water per 1000 sq. ft.)is recommended. For best control, thoroughly irrigate following application to moisten the top inch of soil. There should be no more than 1/2 inch of thatch present at the time of application. Under dry conditions where thatch is present, prewatering is recommended prior to application for grub or weevil control.

For control of armyworms, cutworms, webworms, chinch bugs or leafhoppers, do not irrigate following application.

*Please confirm your GRANDEVO CG package size to ensure it accommodates the specified rate before following.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Store in original container in a cool, dry place.

Pesticide Disposal: To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

Container Handling: Nonrefillable container. Do not reuse or refill this container.

Completely empty bag into application equipment. Then offer for recycling if available, or dispose of empty bag in a sanitary landfill or by incineration. Do not burn, unless allowed by state and local ordinances. (For instances where state and local ordinances do allow burning): If burned, stay out of smoke.

WARRANTY

To the extent consistent with applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. To the extent consistent with applicable law, the user assumes all risks of use, storage or handling that are not in accordance with the accompanying directions.

Label date: September 2017

Made in the U.S.A.

DiPel® DF

BIOLOGICAL INSECTICIDE

DRY FLOWABLE

FOR ORGANIC PRODUCTION

ACTIVE INGREDIENT:

Bacillus thuringiensis, subsp. *kurstaki*, strain ABTS-351, fermentation solids, spores, and insecticidal toxins*	54%
OTHER INGREDIENTS	46%
TOTAL	100%

*Potency: 32,000 Cabbage Looper Units (CLU) per mg (14.5 billion CLU per pound).

The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

EPA Reg. No. 73049-39
EPA Est. No. 33762-IA-001 List No. 12046

INDEX:

KEEP OUT OF REACH OF CHILDREN

CAUTION

1.0 FIRST AID

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

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 800-892-0099 (24 hours) for emergency medical treatment and/or transport emergency information. For all other information, call 800-6-VALENT (682-5368).

2.0 PRECAUTIONARY STATEMENTS

2.1 HAZARD TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if inhaled or absorbed through the skin. Causes moderate eye irritation. Avoid breathing dust or spray mist. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash before reuse.

2.2 Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization.

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

2.3 Engineering Controls

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.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all the PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment break-down.

2.4 User Safety Recommendations

- Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- User should 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.

2.5 Environmental Hazards

Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

CONTINUED

This product must not be applied aerially within 1/4 mile of any habitats of endangered species or threatened lepidoptera. No manual application can be made within 300 feet of any threatened or endangered lepidoptera.

3.0 DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

4.0 AGRICULTURAL USE REQUIREMENTS

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and 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. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

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.

Do not enter or allow worker entry into treated areas during the Restricted Entry Interval (REI) of 4 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water is:

- Coveralls
- Waterproof gloves
- Shoes plus socks

5.0 NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses that are NOT within the scope of the Worker Protection Standard 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.

Keep unprotected persons out of the treated areas until sprays have dried.

6.0 STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

Pesticide Storage: Reclose containers of unused DiPel® DF. Store in a dry place inaccessible to children and out of sunlight.

Pesticide Disposal: Do not contaminate food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment by shaking and tapping sides and bottom to loosen clinging particles. Offer for recycling, if available, or dispose of empty bag in a sanitary landfill or by incineration. Do not burn, unless allowed by State and local ordinances.

7.0 DIRECTIONS FOR USE

See Chemigation section for chemigation use directions.

Days to Harvest: There are no restrictions on applying *DiPel* DF up to the time of harvest. Individual state regulations may vary and should be consulted for allowable pre-harvest application intervals.

Sites: *DiPel* DF may be used for any labeled pest in both field and greenhouse use.

DiPel DF is an insecticide for use against listed caterpillars (larvae) of lepidopterous insects. Close scouting and early attention to infestations is highly recommended. Larvae must eat deposits of *DiPel* DF to be affected. Always follow these directions:

- Treat when larvae are young (early instars) before the crop is damaged.
- Larvae must be actively feeding on treated, exposed plant surfaces.
- Thorough spray coverage is needed to provide a uniform deposit of *DiPel* DF at the site of larval feeding. Use overhead and drop nozzles to obtain good spray coverage on both sides of foliage. Use sufficient spray volume to insure uniform deposition on all plant surfaces.
- Under heavy pest population pressure, use the higher label rates, shorten the spray interval, and/or raise spray volume to improve spray coverage.
- Repeat applications at an interval sufficient to maintain control, usually 3 to 14 days depending on plant growth rate, moth activity, rainfall after treating, and other factors. If attempting to control a pest with a single spray, make the treatment when egg hatch is essentially complete, but before crop damage occurs.
- A spreader-sticker which has been approved for use on growing and harvested crops should be added for hard-to-wet crops such as cabbage, or to improve weather-fastness of the spray deposits.
- *DiPel* DF is a non-restricted use pesticide and does not require a restricted use permit for purchase and use.
- *DiPel* DF may be tank mixed with other labeled insecticides to enhance control. Use of the resulting tank mix must be in accordance with the more restrictive label limitations and precautions. No dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing. Before tank mixing *DiPel* DF with other labeled products, including spreader stickers, check for tank mix compatibility.

After ingesting a lethal dose of *DiPel* DF, larvae stop feeding within the hour, and will die within several hours to 3 days. Mortality varies with larval size (instar), lepidopteran species, and dose consumed. Following ingestion, larvae become sluggish, discolor, then shrivel, blacken and die. Smaller larvae die more quickly.

DiPel DF may be applied in conventional ground or aerial equipment with quantities of water sufficient to provide uniform coverage of infested plant parts. The volume of water needed per acre will depend on crop development, relative humidity, spray equipment, and local experience. Usually, selection of moderate to high spray volume will provide the best results in most equipment. For optimal results, use at least 20 gallons of water per acre for ground application. For aerial application use at least 3 gallons of water per acre; exception being arid areas, where 5 to 10 gallons are required. Add water to the mix tank and provide moderate agitation. While agitating, add the required amount of *DiPel* DF. Continue agitation, and add other spray materials, if any. Add remaining water, if any, and agitate until fully mixed. Maintain the suspension with moderate agitation while loading and spraying. Do not mix more *DiPel* DF than can be used in a 3 day period.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all of these factors when making decisions.

CONTINUED

For Smaller Spray Volumes:

If Rate is	Use This Amount Per Gallon (wt)
1/4 lb/acre or 100 gals	1/2 tsp (0.04 oz)
1/2 lb/acre or 100 gals	1 tsp (0.08 oz)
1 lb/acre or 100 gals	2 tsps (0.16 oz)
2 lb/acre or 100 gals	4 tsps (0.32 oz)

8.0 CHEMIGATION USE DIRECTIONS

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation systems. Do not apply this product through any other type of irrigation systems. Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system.

Crop injury, lack of effectiveness, or illegal residues in the crop can result from non-uniform distribution of treated water. 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. Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water.

8.1 Spray Preparation

First prepare a suspension of *DiPel* DF in a mix tank. Fill tank with 1/2 to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of *DiPel* DF, and then the remaining volume of water. Then set the sprinkler to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the suspension of *DiPel* DF into the irrigation water line so as to deliver the desired rate per acre. The suspension of *DiPel* DF should be injected with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. Any questions on calibration should be directed to your State Extension Service Specialists, to equipment manufacturers or other experts.

NOTE: When treatment with *DiPel* DF has been completed, further field irrigation over the treated area should be avoided for 24 to 48 hours to prevent washing the material off the crop.

9.0 GENERAL PRECAUTIONS FOR APPLICATIONS THROUGH SPRINKLER IRRIGATION SYSTEMS

Maintain continuous agitation in the mix tank during mixing and application to insure a uniform suspension.

Greater accuracy in calibration and distribution will be achieved by injecting a larger volume for a more dilute solution per unit time.

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 backflow.

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 injection pump (e.g., 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, system connections or fittings leak, nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained.

10.0 PESTS CONTROLLED BY *DIPEL* DF

Common name	Scientific name
Achema Sphinx Moth (Hornworm)	*Eumorpha achemon*
Alfalfa Caterpillar	*Colias eurytheme*
Almond Moth	*Caudra cautella*
Amorbia Moth	*Amorbia humerosana*
Armyworm	*Spodoptera spp.*, e.g. *exigua, frugiperda, littoralis, Pseudaletia unipuncta*
Artichoke Plume Moth	*Platyptilia carduidactyla*
Azalea Caterpillar	*Datana major*
Bagworm	*Thyridopteryx ephemeraeformis*
Banana Moth	*Hypercompe scribonia*
Banana Skipper	*Erionota thrax*
Blackheaded Budworm	*Acleris gloverana*
California Oakworm	*Phryganidia californica*
Cankerworm	*Paleacrita merriccata*
Cherry Fruitworm	*Grapholita packardi*
China Mark Moth	*Nymphula stagnata*
Citrus Cutworm	*Xylomyges curialis*
Codling Moth	*Cydia pomonella*
Cotton Bollworm	*Helicoverpa zea*
Cranberry Fruitworm	*Acrobasis vaccinii*
Cross-striped Cabbageworm	*Evergestis rimosalis*
Cutworm	Various *Noctuid* species, e.g. *Agrotis ipsilon*
Diamondback Moth	*Plutella xylostella*
Douglas Fir Tussock Moth	*Orgyia pseudotsugata*
Ello Moth (Hornworm)	*Erinnyis ello*
Elm Spanworm	*Ennomos subsignaria*
European Corn Borer	*Ostrinia nubilalis*
European Grapevine Moth	*Lobesia botrana*
European Skipper (Essex Skipper)	*Thymelicus lineola*
Fall Webworm	*Melissopus latiferreanus*
Filbert Leafroller	*Archips rosanus*
Fruittree Leafroller	*Archips argyrospilia*
Grape Berry Moth	*Paralobesia viteana*
Grape Leafroller	*Platynota stultana*
Grapeleaf Skeletonizer (ground only)	*Harrisina americana*
Green Cloverworm	*Plathypena scabra*
Greenstriped Mapleworm	*Dryocampa rubicunda*
Gummosos-Batrachedra Comosae (Hodges)	

CONTINUED

10.0 Pests controlled by *DiPel* DF (Cont'd)

Common name	Scientific name
Gypsy Moth	*Lymantria dispar*
Headworm	*Helicoverpa zea*
Head Moth	
Hemlock Looper	*Lambdina fiscellaria*
Hornworm	*Manduca* spp.
Imported Cabbageworm	*Pieris rapae*
Indian Meal Moth	*Plodia interpunctella*
Io Moth	*Automeris io*
Jack Pine Budworm	*Choristoneura pinus*
Light Brown Apple Moth	*Epiphyas postvittana*
Looper	Various *Noctuidae*, e.g. *Trichoplusia ni*
Melonworm	*Diaphania hyalinata*
Mimosa Webworm	*Homadaula anisocentra*
Obliquebanded Leafroller	*Choristoneura rosaceana*
Oleander Moth	*Syntomeida epilais*
Omnivorous Leafroller	*Playnota stultana*
Omnivorous Looper	*Sabulodes aegrotata*
Orangedog	*Papilio cresphontes*
Orange Tortrix	*Argyrotaenia citrana*
Oriental Fruit Moth	*Grapholita molesta*
Peach Twig Borer	*Anarsia lineatella*
Pine Butterfly	*Neophasia menapia*
Podworm	*Heliocoverpa zea*
Redbanded Leafroller	*Argyrotaenia velutinana*
Redhumped Caterpillar	*Schizura concinna*
Rindworm Complex	Various *Leps.*
Saddleback Caterpillar	*Sibine stimulea*
Saddle Prominent Caterpillar	*Heterocampa guttivitta*
Saltmarsh Caterpillar	*Estigmene acrea*
Sod Webworm	*Crambus* spp.
Soybean Looper	*Pseudoplusia includens*
Spanworm	*Ennomos subsignaria*
Spring and Fall Cankerworm	*Paleacrita vernata* and *Alsophila pometaria*
Spruce Budworm	*Choristoneura fumiferana*
Tent Caterpillar	Various *Lasiocampidae*
Thecla-Thecla Basilides (Geyr)	*Thecla basilides*
Tobacco Budworm	*Heliothis virescens*
Tobacco Hornworm	*Manduca sexta*
Tobacco Moth	*Ephestia elutella*
Tomato Fruitworm	*Helicoverpa zea*
Tufted Apple Budmoth	*Platynota idaeusalis*
Twig Borer	*Anarsia lineatella*
Variegated Cutworm	*Peridroma saucia*
Variegated Leafroller	*Platynota flavedana*
Velvetbean Caterpillar	*Anticarsia gemmatalis*
Walnut Caterpillar	*Datana integerrima*
Webworm	*Hyphantria cunea*
Western Tussock Moth	*Orgyia vetusta*
Southern Cornstalk Borer	*Diatraea crambidoides*
Sugarcane Borer	*Diatraea saccharalis*
Corn Earworm, Cotton Bollworm, Tomato Fruitworm	*Helicoverpa zea*
Tobacco Budworm	Heliothis virescens

11.0 APPLICATION RATE

Field Crops	Application rate (pounds/acre)
Vegetables, root and tuber (Crop Group 1) Including: Arracacha; arrowroot; artichoke, Chinese; artichoke, Jerusalem; beet, garden; beet, sugar; burdock, edible; canna, edible; carrot; cassava, bitter and sweet; celeriac; chayote (root); chervil, turnip-rooted; chicory; chufa; dasheen (taro); ginger; ginseng; horseradish; leren; parsley, turnip-rooted; parsnip; potato; radish; radish, oriental; rutabaga; salsify; salsify, black; salsify, Spanish; skirret; sweet potato; tanier; turmeric; turnip; yam bean; yam, true.	0.5 - 2
Vegetable, bulb (Crop Group 3 - 07) Including: Chive, fresh leaves; chive, Chinese, fresh leaves; daylily, bulb; elegans hosta; fritillaria, bulb; fritillaria, leaves; garlic, bulb; garlic, great-headed, bulb; garlic, serpent, bulb; kurrat; lady's leek; leek; leek, wild; lily, bulb; onion, Beltsville bunching; onion, bulb; onion, Chinese, bulb; onion, fresh; onion, green; onion, macrostem; onion, pearl; onion, potato, bulb; onion, tree, tops; onion, Welsh, tops; shallot, bulb; shallot, fresh leaves; cultivars, variety, and/or hybrids of these.	0.5 - 2 Use 1-2 lb/acre for control of *Helicoverpa*.
Vegetable, leafy, except brassica (Crop Group 4) Including: Amaranth (Chinese spinach); arugula (roquette); cardoon; celery; celery, Chinese; celtuce; chervil; chrysanthemum, edible-leaved; chrysanthemum, garland; corn salad; cress, garden; cres, upland; dandelion; dock (sorrel); endive (escarole); fennel, Florence; lettuce, head and leaf; orach; parsley; purslane, garden; purslane, winter; radicchio (red chicory); rhubarb; spinach, New Zealand; spinach, vine; Swiss chard.	0.5 - 2 Use higher rates for control of *Heliothis* spp.
Vegetable, brassica leafy (Crop Group 5) Including: Broccoli; broccoli, Chinese (gai lon); broccoli raab (rapini); Brussels sprouts; cabbage; cabbage, Chinese (bok choy); cabbage, Chinese (napa); cabbage, Chinese mustard (gai choy); cauliflower; cavalo broccoli; collards; kale; kohlrabi; mizuna; mustard greens; mustard spinach; rape greens.	0.5 - 2 Use 0.5 to 1.5 lb/acre for looper control and 1-2 lb/acre for *Heliothis* spp. control depending on larval stage and infestation levels. Use surfactants for hard to wet crops.
Vegetable, legume (succulent or dried) (Crop Group 6) Including: Bean, (*Lupinus*) (includes grain lupin, sweet lupin, white lupin, and white sweet lupin); bean (*Phaseolus*) (includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean); bean (*Vigna*) (includes adzuki bean, asparagus bean, blackeyed bean, catjang, Chinese longbean, cowpea, crowder pea, moth bean, mung bean, rice bean, southern pea, urd bean, yardlong bean); broad bean (fava); chickpea (garbanzo); guar; jackbean; lablab bean; lentil; pea (*Pisum*) (includes dwarf pea, edible-podded pea, English pea, field pea, garden pea, green pea, snowpea, sugar snap pea); pigeon pea; soybean; soybean (immature seed); sword bean.	0.5 - 2 Monitor insects and apply at more frequent intervals (3 - 5 days) for heavy populations to maintain control.

11.0 Application Rate

Field Crops	Application rate (pounds/acre)
Vegetable, fruiting (Crop Group 8 - 10) Including: African eggplant; bush tomato; bell pepper; cocona; currant tomato; eggplant; garden huckleberry; golj berry; groundcherry; martynia; naranjilla; okra; pea eggplant; pepino; nonbell pepper; roselle; scarlet eggplant; sunberry; tomatillo; tomato; tree tomato; cultivars, varieties, and/or hybrids of these.	0.5 - 2 Use 1 - 2 lb/acre for control of heavy populations or overlapping generations of *Spodoptera* spp. Scout tomato fields and apply when insects are hatching or are small.
Vegetable, cucurbit (Crop Group 9) Including: Chayote waxgourd (Chinese preserving melon); citron melon; cucumber; gherkin; gourd, edible (includes hyotan, cucuzza, hechima, Chinese okra); *Momordica* spp. (includes balsam apple, balsam pear, bittermelon, Chinese cucumber); muskmelon (includes cantaloupe); pumpkin; squash, summer; squash, winter (includes butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash); watermelon.	0.5 - 2 Use 1 - 2 lb/acre for control of *Spodoptera* spp.
Fruit, citrus (Crop Group 10 - 10) Including: Australian desert lime; Australian finger lime; Australian round lime; Brown River finger lime; calamondin; citron; citrus hybrids; grapefruit; Japanese summer grapefruit; kumquat; lemon; lime; Mediterranean mandarin; mount white lime; New Guinea wild lime; orange, sour; orange, sweet; pummelo; Russell River lime; Satsuma mandarin; sweet lime; tachibana orange; Tahiti lime; tangelo; tangerine (mandarin); tangor; trifoliate orange; uniq fruit; cultivars, varieties, and/or hybrids of these.	0.5 - 2 Use sufficient volume of water to ensure good canopy coverage and penetration.
Fruit, pome (Crop Group 11 - 10) Including: Apple; azarole; crabapple; loquat; mayhaw; medlar; pear; pear, Asian; quince; quince, Chinese; quince, Japanese; tejocote; cultivars, varieties, and/or hybrids of these. For leaf rollers, it is important to apply before leaves are rolled and insects are protected. *DiPel* DF can be used during bloom.	0.5 - 2 Scout orchards and apply when insects are hatching or small. For insect borers (e.g. codling moth) it is important to apply before the insect bores into the fruit.
Fruit, stone (Crop Group 12) Including: Apricot; cherry, sweet; cherry, tart; nectarine; peach; plum; plum, Chickasaw; plum, Damson; plum, Japanese; plumcot; prune (fresh).	0.5 - 2 Scout orchards and apply when insects are hatching or are small, are actively feeding on leaf surfaces, and before they enter fruit or roll leaves. *DiPel* DF can be used during bloom.

Field Crops	Application rate (pounds/acre)
Berry and small fruit group (Crop Group 13 - 07) Including: Amur river grape; aronia berry; bayberry; bearberry; bilberry; blackberry (including Andean blackberry, arctic blackberry, bingleberry, black satin berry, boysenberry, brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyenne blackberry, common blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, evergreen blackberry, Himalayaberry, hullberry, lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, mora, mures deronce, nectaberry, Northern dewberry, olallieberry, Oregon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, Southern dewberry, tayberry, youngberry, zarzamora, and cultivars, varieties and/or hybrids of these); blueberry, highbush; blueberry, lowbush; buffalo currant; buffaloberry; che; Chilean guava; chokeberry; cloudberry; cranberry; cranberry, highbush; currant, black; currant, red; elderberry; European barberry, gooseberry; grape; honeysuckle, edible; huckleberry; jostaberry; Juneberry (Saskatoon berry); kiwifruit, fuzzy; kiwifruit, hardy; lingonberry; maypop; mountain pepper berries; mulberry; muntries; native currant; partridgeberry; phalsa; pincherry; raspberry, black and red; riberry; salal; schisandra berry; sea buckthorn; serviceberry; strawberry; wild raspberry; cultivars, varieties, and/or hybrids of these.	0.5 - 2 For armyworm (*Spodoptera* spp.) and cutworm (e.g. *Agrotis ipsilon*), use the higher rate range. Ensure good coverage for optimal control.
Nut, tree (Crop Group 14) Including: Almond; beech nut; Brazil nut; butternut; cashew; chestnut; chinquapin; filbert (hazelnut); hickory nut; macadamia nut; pecan; walnut, black and English.	0.5 - 2
Grain, cereal (Crop Group 15) Including: Barley; buckwheat; corn; millet, pearl; millet, proso; oats; popcorn; rice; rye; sorghum (milo); teosinte; wheat; wild rice.	0.5 - 2
Grass Forage, Fodder, and Hay (Crop Group 17) Including: Any grass, *Gramineae* family (either green or cured) except sugarcane and those included in the cereal grains group, that will be fed to or grazed by livestock, all pasture and range grasses and grasses grown for hay or silage.	0.5 - 2 If crop is in rapid growth phase, and/or there is ongoing egg laying and overlapping pest generations apply *DiPel* DF with increased frequency @ 3 - 7 days to maintain control. For armyworm (*Spodoptera* spp.) use the higher label rates.

CONTINUED

11.0 Application Rate (Cont'd)

Field Crops	Application rate (pounds/acre)
Herbs and spices (Crop Group 19) Including: Allspice; angelica; anise; anise, star; annatto (seed); balm; basil; borage; burnet; chamomile; caper buds; caraway; caraway, black; cardamom; cassia bark; cassia buds; catnip; celery seed; chervil (dried); chive; chive, Chinese; cinnamon; clary; clove buds; coriander leaf (cilantro or Chinese parsley); coriander seed (cilantro); costmary; cilantro (leaf); cilantro (seed); cumin (curry leaf); dill (dillweed); dill (seed); fennel (common); fennel, Florence (seed); fenugreek; grains of paradise, horehound; hyssop; juniper berry; lavender; lemon-grass; lovade (leaf); lovage (seed); mace; marigold, marjoram; mustard (seed); nasturtium; nutmeg; parsley (dried); pennyroyal; pepper, black; pepper, white; poppy (seed); rosemary; rue; saffron; sage; savory, summer and winter; sweet bay; tansy; tarragon; thyme; vanilla; wintergreen; woodruff; wormwood.	0.5 - 2 Use 1 - 2 lb/acre for control of *Spodoptera* spp.
Alfalfa (hay and seed)	0.5 - 2 If crop is in rapid growth phase, and/or there is ongoing egg laying and overlapping pest generations apply *DiPel* DF with increased frequency @ 3 - 7 days to maintain control. For armyworm (*Spodoptera* spp.) use the higher label rates.
Artichoke	0.5 - 2
Asparagus	0.5 - 2
Avocado	0.5 - 2 Apply at or soon after egg hatch when insects are small.
Banana	0.5 - 1 Ensure good coverage to all foliage.
Coffee	1 - 2 For best results, drench bark and new shoots with 1 - 2 lbs of *DiPel* DF per acre, mixing with a sufficient volume of water to ensure uniform coverage.
Cotton	0.5 - 2 Lower rate ranges (0.5 - 1 lb/acre) can be used early season if the insects are small and pest pressure is not high. If *Helicoverpa* spp. is the dominant species, or pest pressure is high with variable larval stages, use 1.5 - 2 lb/acre. Later in the season when insect development is rapid, use the higher rate of 1.5 - 2 lb/acre to control *Helicoverpa* spp. As the canopy becomes denser, use higher water carrier volumes to penetrate foliage and ensure complete coverage. If additional activity or spectrum is required *DiPel* DF can be mixed with a pyrethroid or other approved insecticide. Follow the most restrictive label directions when tank mixing.
Fruit, tropical	0.5 - 2 Monitor populations and apply when insects are small and before they roll and web leaves in leaf rolling species.
Hop	0.5 - 2 Use 1.5 - 2 lb/acre when insect populations are high or when *Spodoptera* is the dominant pest.
Kiwi fruit	0.5 - 2 Apply at hatch or when small insects are actively feeding. Monitor population and apply at 5 - 7 day intervals.
Malanga	0.5 - 2
Mint and peppermint	0.5 - 2 Use 1 - 2 lb/acre for control of *Spodoptera* spp.
Peanut	0.5 - 1 Apply at intervals necessary to maintain control. *DiPel* DF can be tank mixed with a pyrethroid for additional spectrum and control. Follow label directions from the most restrictive material when tank mixing products.
Pineapple	0.25 - 0.5 Apply when insects are small before they damage fruit. Thorough coverage is required to get to the base of the fruit.
Pomegranate	0.5 - 2
Rape (Canola)	0.5 - 2 Use 1 - 2 lb/acre for *Heliothis* spp. control.
Safflower	0.5 - 2
Sugarcane	0.5 - 2 For sugarcane borer control, best used with parasitic wasps. Apply when insects are actively feeding on foliage and before they bore into the plant.
Sunflower	0.5 - 1 Thorough coverage of larval feeding sites within flowers is necessary for adequate control.
Tobacco	0.5 - 1
Watercress	0.5 - 2 Apply when there is no standing water in the bed.

Crops	Application rate (pounds/acre)
GREENHOUSE/SHADEHOUSE AND OUTDOOR NURSERY	
Crops including but not limited to: **Vegetable, leafy, except brassica (Crop Group 4), Vegetable, brassica leafy, (Crop Group 5), Vegetable, fruiting, (Crop Group 8), Herbs and spices (Crop Group 19)**	0.5 - 2 Use higher rates for *Heliothis* spp.

TANK MIXES

Always read and follow all label directions, restrictions and precautions when using any pesticide alone or in tank mix combinations. The most restrictive labeling applies when using a tank mix.

CONTINUED

Crops	Pests	Products	Application Rate (lb/acre)	Special Instructions
Cotton	Armyworm Cotton Bollworm Looper Saltmarsh Caterpillar Tobacco Budworm	*DiPel* DF plus Pyrethroid	1/2 - 1 plus Labeled Use Rate	Treat when larvae are young (early instars) before the crop is damaged. Larvae must be actively feeding on treated, exposed surfaces. Use sufficient spray volume to insure uniform coverage and deposition on all plant surfaces. Use the higher rate for high infestations. Can be applied by air or ground. Will control pyrethroid resistant species of the pests listed on this 2(ee) recommendation. * For corn earworm, use the 1 lb/acre rate. Refer to pyrethroid label for additional insects controlled.
Peanut	Armyworms Green Cloverworm Looper Podworm Velvetbean Caterpillar	*DiPel* DF plus Pyrethroid	1/2 - 1 plus Labeled Use Rate	
Soybean	Armyworm Corn Earworm* Green Cloverworm Looper Podworm Saltmarsh Caterpillar Soybean Looper Velvetbean Caterpillar	*DiPel* DF plus Pyrethroid	1/2 - 1* plus Labeled Use Rate	

11.1 *DiPel* DF for Stored Agricultural Commodities

(For all states except California)

GRAINS, SOYBEANS, SUNFLOWER SEED, CROP SEED, CONDIMENTAL SEEDS, SPICES, HERBS, BIRDSEED AND POPCORN

Pest	Rate
Indian Meal Moth[1]	3/8 lb/100 bu
Almond Moth[1]	(undiluted and diluted)*

* As a surface treatment, apply 1/2 lb *DiPel* DF in 5-10 gal of water per 500 sq ft of grain surface area, mix into top 4 inches. For commodities coarser than shelled corn, increase depth of treatment according to the habit of the pest.

[1] For the control and prevention of these pests, apply *DiPel* DF in a constantly agitated water suspension to the top 4 inch surface layer of grain in the bin. Use a sprinkler can or sprayer to apply the suspension into the grain stream as the last (top) 4 inch layer is augured into the bin. Mix 1/20 lb *DiPel* DF per gallon of water. Apply 0.6 pint of this mixture per bushel as grain is augured into storage. Or, sprinkle the suspension onto the surface of the grain in the bin and mix thoroughly with a scoop or rake to the depth of 4 inches. More thorough coverage may be achieved by dividing the recommended concentration into three applications and mixing the grain between applications.

For the protection of bagged grain including popcorn, apply the suspension to the entire grain mass and mix thoroughly prior to bagging.

Treatments can be applied to stored grain at any time, but for best results, make application immediately after harvest before moth activity occurs. In areas where late fall harvested grain is not subject to infestation because of low temperatures, application can be delayed until late winter or early spring before moth activity begins. Control for a full storage season should normally be expected; however, repeat application if infestation recurs.

This treatment controls the moth larvae. If an infestation is present when the grain is treated, moth emergence may continue for several days. If immediate control of severe infestations is desired, grain should be fumigated prior to application of this treatment. *DiPel* DF **will not control weevils or other beetles.**

PEANUT

Pest	Rate
Indian Meal Moth Almond Moth	1/4 lb/ton*

* Apply this rate to the top 4-8 feet of nuts when filling the warehouse.

To prevent and control these pests, spray an even coating of *DiPel* DF on the farmer stock peanuts while filling the warehouse. To make the spray solution, mix 3-3/4 lbs *DiPel* DF per 5 gallons of water. Apply to 15 tons of commodity. Do not pre-mix more spray solution than will be used within 12 hours. Keep the spray suspension agitated during application, and use pressures and nozzles sufficient to handle this suspension.

Before filling the warehouse, clean thoroughly, then spray interior of the facility with a *DiPel* DF suspension at the rate of 1/2 lb *DiPel* DF per 100 gallons water. Spray enough suspension to wet all cracks and crevices.

For bagged peanuts, treat the entire quantity at the rate indicated above.

FLUE-CURED TOBACCO

Pest	Rate
Tobacco Moth	0.2 oz/100 lbs*

* Apply 0.2 ounce (approximately 2-1/2 tsps) of *DiPel* DF in one quart of water per 100 pounds of tobacco as a fine mist spray. Avoid overwetting. Tobacco should have just enough moisture to be handled without shattering at the time of application.

Tobacco to be Stored up to Twelve Months

Spray loose leaves as the tobacco is being bundled from the curing barn. For tobacco on sticks, treat both sides of leaves.

Stored Tobacco

For tobacco which is to be carried over, rebundle or restack sticks, fluff up tobacco and spray loose leaves.

For tobacco that has been stored over three weeks, apply at first sign of infestation; promptly open bundles, spray loose leaves, then bundle.

CONTINUED

Treatment of Storage Barns

Treatment of storage barn floors and walls with *DiPel* DF may aid in control of the Tobacco Moth. Sweep out the area, especially cracks and corners, and all of the loose tobacco pieces in which the moth might breed. Make a spray mixture containing 1/2 oz (6 tsps) *DiPel* DF per 2-1/2 gallons of water. Apply this at a rate of 1/2 gallon per 1000 sq ft of surface area. Be sure to spray into cracks and between floorboards.

12.0 NOTICE TO USER

To the extent consistent with applicable law, seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on the label. User assumes all risks of use, storage or handling not in strict accordance with accompanying directions.

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