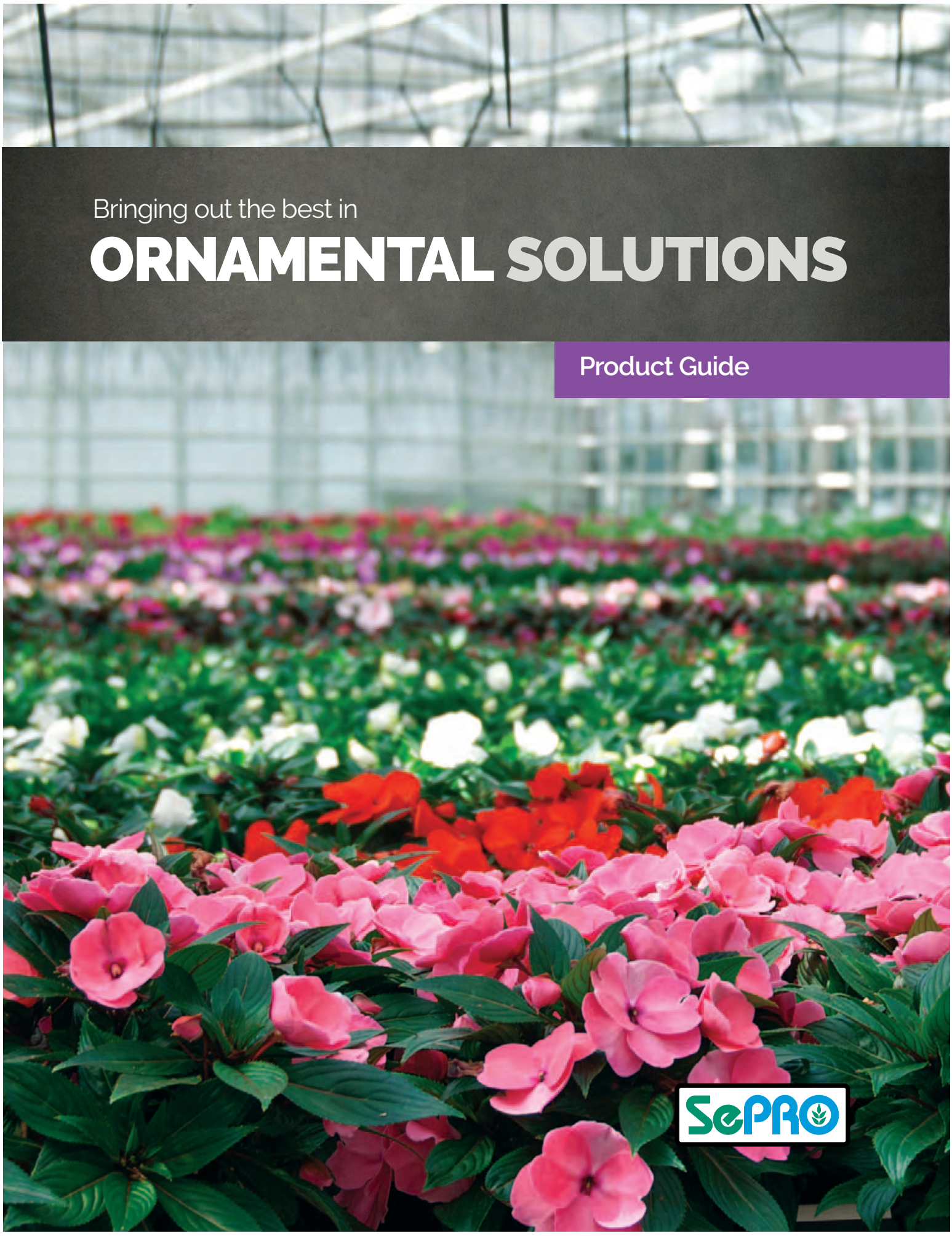
Bringing out the best in

ORNAMENTAL SOLUTIONS

Product Guide



Introduction

The SePRO portfolio of ornamental solutions described in this brochure are designed to offer the professional grower reliable and cost-effective plant production. SePRO provides high-quality solutions for insect and disease control as well as plant growth regulation to help you bring healthy, sellable plants and produce to market.

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Akari® Miticide/Insecticide

All Mites. All Life Stages.

Akari's unique, immediate "stop-feeding action" not only stops further crop damage, but also inhibits oviposition. The immediate stop-feed prevents mites and insects from further eating away at your profits before they die out completely 4 - 7 days later. While Akari is active on all life stages, it is especially effective on the plant damaging larvae, nymph and adult stages. Akari provides long residual action of 21 - 28 days, making it a powerful and convenient addition to your IPM program. As a contact solution, thorough spray coverage is essential to obtain desirable control.

Features	Benefits
• Immediate stop-feed	• Prevents further damage to crops and reduces vector-transmitted diseases and viruses
• Broad-spectrum activity	• Provides a failsafe for misidentified mite species and infestations of multiple mite species
• Excellent crop safety on vegetables and ornamentals	• Spray your vegetables and ornamentals with the same tank
• Active on all life stages	• Complete eradication results in a true mite-free environment
• EPA Reduced Risk Certified	• Less risk to human health and the environment than other miticides such as abamectin and pyridaben

Akari Quick Facts	
Use Sites	Greenhouses/Shadehouses, Outdoor nurseries, Greenhouse Tomatoes, Peppers and Cucumbers, Plantscapes, Interiorscapes, Christmas trees, Nonbearing Fruit Trees and Vines
Pests Controlled	Mites (Spider Mites, Tarsonemid Mites, Eriophyid Mites), Mealybugs, Whiteflies, Psyllid
Life Stages Controlled	Eggs, Immatures and Adults
Recommended Rate	16 - 32 fl. oz. per 100 gallons
Application	Spray
Pre-Harvest Interval (PHI)	**Tomatoes and Peppers:** • 1 day **Cucumbers:** • 7 days
Restricted-Entry Interval (REI)	12 hours
Active Ingredient	Fenpyroximate
Mode of Action (IRAC Group)	METI (21A)

Hachi-Hachi® SC Insecticide

Changing the Game in Insect Management.

The improved Hachi-Hachi SC Insecticide provides the same outstanding broad-spectrum control with exceptional crop safety. Hachi-Hachi SC is highly efficacious on thrips, aphids, leafhoppers, lepidopteran and coleopteran insects, scale, mealybugs and whiteflies. All life stages of target insects exposed to Hachi-Hachi SC via contact or ingestion are controlled. Additionally Hachi-Hachi SC demonstrates exceptional fungistatic activity against powdery and downey mildew.

Features

- Superior broad-spectrum efficacy
- Unique chemistry for thrips control
- Improved formulation
- Active on all life stages
- Mildew suppression
- No known resistance or cross resistance

Benefits

- A much needed additional tool to battle troublesome pests
- Strengthens an IPM program to reduce the risk of resistance development
- Significantly enhanced plant safety and reduced odor
- One spray controls eggs, immatures and adults
- Insect control and disease suppression in one

Registered for Outdoor Use

Hachi-Hachi SC Quick Facts	
Use Sites	Greenhouses/Shadehouses, Outdoor Nurseries, Landscape Plantings, Christmas Trees, Non-bearing Fruit and Nut Trees, and Vines
Pests Controlled	Aphids, Coleoptera Leafhoppers, Lepidoptera, Mealybugs, Scale, Thrips (including Western Flower), Whiteflies, Powdery mildew, Downy mildew
Life Stages Controlled	Eggs, Immatures and Adults
Recommended Rate	**Indoor:** 14 - 32 fl. oz. per 100 gallons **Outdoor:** 14 - 27 fl. oz. per 100 gallons
Application	Spray
Restricted-Entry Interval (REI)	12 hours
Active Ingredient	Tolfenpyrad
Mode of Action (Chemical Group)	METI (21A) - IRAC Pyrazole - MET1 (39) - FRAC

Ornazin® Botanical Insecticide

The Natural Choice.

The active ingredient in Ornazin Botanical Insecticide, azadirachtin, is a natural limonoid extracted from the seeds of the tropical Neem tree. This natural compound acts as a powerful insect growth regulator, antifeedant and repellent. Ornazin inhibits the production of the key molting hormone, ecdysone. In the absence of ecdysone, insects are unable to properly molt/pupate, leading to death.

Combine Ornazin's broad-spectrum activity with its gentleness to beneficials and it becomes a perfect component of a produce IPM program.

Features

- Broad-spectrum insect control
- Gentle to beneficials
- Vegetable and herb label
- Repels adults
- Excellent formulation

Benefits

- Clean up multiple insect pests with one spray
- Great tool to supplement existing IPM program
- Spray your food crops and ornamentals with the same tank
- Saves plants from the damaging immature and adult stages
- Low odor, easy to handle and compatible with other pesticides

Ornazin Quick Facts	
Labeled Produce Crops	Greenhouses/Shadehouses, Outdoor Nurseries, Greenhouse Vegetables and Herbs, Landscape Plantings, Interiorscapes, Christmas Trees
Pests Controlled	Aphids, Beetles, Caterpillars, Fungus Gnats, Leafminers, Leaf/Planthoppers, Lepidopteran larvae, Mealybugs, Nematodes, Sawflies, Scales, Thrips, Whiteflies
Life Stages Controlled	Immatures, Adult repellant
Recommended Rate	**Aphids, Caterpillars, Fungus Gnats, Mealybugs, Thrips and Weevils:** • 8 fl. oz. per 100 gallons **Beetles, Leaf/Planthoppers, Scales and Whiteflies:** • 10 fl. oz. per 100 gallons
Application	Spray
Pre-Harvest Interval (PHI)	0 day
Restricted-Entry Interval (REI)	12 hours
Active Ingredient	Azadirachtin
Mode of Action (IRAC Group)	Ecdysone inhibitor (18B)

Rycar® Insecticide

The Next Generation in Whitefly, Aphid and Mealybug Control.

Rycar Insecticide brings a unique chemistry to a grower's toolbox. Rycar provides excellent control of whiteflies, aphids, mealybugs, chilli thrips and leafhoppers. Rycar acts via contact or ingestion to stop insects from feeding within 2 hours after application before starvation sets in during the next 48 hours. As versatile as Rycar is, it is also very gentle to both beneficial insects and pollinators. Rycar is the perfect alternative to neonicotinoid chemistries and is a great component of a comprehensive, economical IPM program.

Features

- Excellent efficacy on B- and Q-whitefly biotypes
- Immediate stop-feed
- Extremely soft on beneficials
- Unique chemistry
- Superb crop safety
- Translaminar

Benefits

- Eliminates the need to identify which biotype is eating away your profits
- Prevents any further crop damage and reduces viral transmissions
- Great addition to a complete IPM program
- Reduces the risk of resistance development
- Can be applied to many sensitive plant species including poinsettias in-color
- Effective control of difficult to reach insects

Registered for Greenhouse Vegetables

Rycar Quick Facts	
Use Sites	Greenhouse, Greenhouse Vegetables
Pests Controlled	Aphids, Chilli thrips, Leafhoppers, Mealybugs, Whiteflies (all biotypes)
Life Stages Controlled	Immatures and Adults
Recommended Rate	1.6 - 6.4 fl. oz. per 100 gallons
Application	Spray
Restricted-Entry Interval (REI)	12 hours
Active Ingredient	Pyrifluquinazon
Mode of Action (IRAC Group)	Behavior modifier (9B)

Rycar has shown excellent crop safety on bracts in-color.

Talus® Insect Growth Regulator

Break the Life Cycle.

In addition to its phenomenal activity against nuisance insects, some of the best features of Talus Insect Growth Regulator (IGR) include its tenderness to ornamentals, tomatoes and beneficial insects. Talus is effective via contact, ingestion and vapor activity. Talus is also faster acting and has a larger window of application within the target pests' life cycle compared to other IGRs. In addition to its primary mode of action, Talus also suppresses egg-laying and causes egg sterilization in infected adults. Even though Talus is classified as an IGR, it works fast to eliminate insect pests and save your crops.

Features	Benefits
• Great alternative to neonicotinoid chemistries	• Excellent control of many of the similar pests controlled by neonicotinoids such as mealybugs, scales and whiteflies
• Phenomenal crop safety	• Can be applied to some of the more tender plants including poinsettias in color
• Effective via contact, ingestion and vapor activity	• Enhances control potential
• Controls a wide-range of mealybug, scale and whitefly species and types	• Provides a failsafe for misidentified species and infestations of multiple pest species

Talus Quick Facts	
Use Sites	Greenhouses/Shadehouses, Outdoor Nurseries, Greenhouse Tomatoes, Landscape Plantings, Non-bearing Fruit and Nut Trees and Vines, Christmas Trees
Pests Controlled	Whiteflies, Mealybugs, Leaf/Planthoppers, Scales
Life Stages Controlled	Immatures, Adults
Recommended Rate	**Whiteflies** • 6 - 9 oz. per 100 gallons **Mealybugs, Leaf/Planthoppers and Scales** • 9 - 14 oz. per 100 gallons
Application	Spray
Pre-Harvest Interval (PHI)	1 day
Restricted-Entry Interval (REI)	12 hours
Active Ingredient	Buprofezin
Mode of Action (IRAC Group)	Chitin biosynthesis inhibitor (16)

A-Rest® Plant Growth Regulator

Tried and True.

A-Rest Plant Growth Regulator is the tried and true PGR for plugs, transplants, bedding plants and perennials. A-Rest provides just the right amount of growth regulation. Gentle enough on tender plugs and transplants yet strong enough to adequate regulated perennials. A-Rest reduces internode elongation resulting in a more compact plant with darker green leaves. A-Rest has no adverse affects to flowers including no flower delay, no residue and no phytotoxicity. A-Rest also strengthen and tones plants, readying them for transplanting and shipping.

Features

- Effective short-term growth regulation
- Highly forgiving
- Adequate regulation to tender, less vigorous plants
- Reduced transplant shock

Benefits

- Perfect for an out-the-door application to hold plant size and shape before it can be sold
- Little risk of hardened, stacked plants that are unsaleable
- Avoid over-regulating plants that aren't able to fill-in after transplanting
- Prevents stretching in the greenhouse yet allows the plant to flourish for the consumer

A-Rest Quick Facts	
Use Sites	Greenhouses/Shadehouses, Outdoor Nurseries, Interiorscapes
Crops	Ornamentals such as bedding plants, herbaceous plants, perennials, container ornamentals and shrubs
Recommended Rate	Various
Application	Spray and drench
Restricted-Entry Interval (REI)	12 hours
Active Ingredient	Ancymidol
Mode of Action (PGR Class)	Gibberellic acid biosynthesis inhibitor (Class B)

A-Rest offers of unsurpassed performance on plugs and young plants providing the perfect level of regulation for sensitive crops like pansies.

Cutless® 0.33G Granular Plant Growth Regulator

Pruning Plants is a Thing of the Past.

Cutless Granular is a grower's top solution to reducing labor input while growing a higher quality plant that is sellable throughout the season. The easy-to-apply granule reduces internode elongation to the point where multiple pruning/shearing events can be eliminated, providing significant cost savings. Eliminating the need to prune/shear allows the plants to be in sellable condition all season long. Cutless Granular treated plants display a desirable compact appearance, darker green foliage and in some species, Cutless Granular enhances flowering.

Features

- Reduces the need to shear/prune
- Increases flowering and overall plant quality
- Improves plant health

Benefits

- Save labor and money
- Plants are salable at all times
- Higher tolerance to pests and environmental stresses

Cutless Granular Quick Facts	
Use Sites	Greenhouses/Shadehouses, Outdoor Nurseries
Crops	Ornamentals such as perennials, container ornamentals and shrubs
Recommended Rate	**Perennial herbaceous ornamentals and ground covers:** 0.05 - 1.75 grams/pot **Perennial woody ornamentals and ground covers:** 0.15 - 4.6 grams/pot
Application	Topdress
Restricted-Entry Interval (REI)	N/A
Active Ingredient	Flurprimidol
Mode of Action (PGR Class)	Gibberellic acid biosynthesis inhibitor (Class B)

SpinOut® Root Growth Regulator

Keep Your Roots Where They Belong.

SpinOut Root Growth Regulator stops roots from growing through the walls of containers and other treated fabrics. When applied to the inside of containers and fabrics, SpinOut improves plant health by preventing root circling and matting allowing for a healthy, fibrous root system that absorbs water and nutrients more effectively. Improving root health also improves tolerance to pests and environmental stresses. SpinOut treated materials produce plants with greater health and longevity.

Features

- Prevents root circling and matting
- Can be used on many surfaces including plastic and fabrics
- Increases transplant survivability
- Eliminates the need for root pruning
- Promotes a natural root system

Benefits

- Roots remain healthy and begin growing immediately upon transplant
- Versatile root growth control in many settings around the growing facility
- Saves money by reducing plant replacement costs
- Increases the plants ability to absorb water and nutrients
- Healthy root system. Healthy plants.

SpinOut Quick Facts	
Use Sites	Ornamental Trees, Containers, Inserts, Landscape and Industrial Fabric, Tree Wound Dressing
Recommended Rate	0 - 25% dilution
Application	Spray, dip or brush/sponge
Restricted-Entry Interval (REI)	12 hours
Active Ingredient	Copper hydroxide

Topflor® Liquid Ornamental Plant Growth Regulator

Your One-Stop PGR.

Topflor Plant Growth Regulator is one of the most versatile PGRs available. Topflor has the strength to regulate vigorous species, yet provides the proper amount of growth control for slower growing crops. Though Topflor is most active via root uptake, it can be effectively utilized as through foliar sprays.

As a result, drench applications of Topflor are more economical than many other PGRs. Topflor treated plants exhibit little-to-no delay in blooms. In fact, most plants treated with Topflor display a more vibrant flower as well as darker green foliage.

Suggested starting rate ratio for Topflor in relation to other PGRs

Application Type	Topflor : Paclobutrazol	Topflor : Uniconazole
Spray	1 : 1	1.5 - 1.75 : 1
Drench	0.25 - 0.5 : 1	1 : 1
Preplant Soak	0.25 - 0.5 : 1	1 : 1

The compact growth resulting from Topflor applications strengthen and tones the plants increasing their tolerance to pest, environmental and shipping stresses.

Features	**Benefits**
• Multi-site absorption	• Excellent activity utilizing spray, drench and pre-plant soak applications
• Little-to-no flower delay	• Reduce production time and help meet shipping deadlines
• Versatile	• Provides the perfect amount of growth regulation to a wide range of bedding, annual and perennial plants, bulb crops and woody ornamentals
• Improves plant health	• Higher tolerance to pests and environmental stresses

Topflor Quick Facts	
Use Sites	Greenhouses/Shadehouses, Outdoor Nurseries
Crops	Ornamentals such as bedding plants, herbaceous plants, perennials, container ornamentals and shrubs
Recommended Rate	Various
Application	Spray, drench and chemigation
Restricted-Entry Interval (REI)	12 hours
Active Ingredient	Flurprimidol
Mode of Action (PGR Class)	Gibberellic acid biosynthesis inhibitor (Class B)

SePRO provides management solutions for insect and disease control as well as plant growth regulation to help you bring beautiful and healthy plants to market.

Camelot® O Fungicide/Bactericide

The Most Advanced Copper Fungicide/Bactericide.

Camelot O Fungicide/Bactericide is your one-stop shop for foliar bacterial and fungal disease control. Camelot O is OMRI certified and approved for organic production of greenhouse vegetables, fruits, and herbs by the National Organic Program (NOP). It's unique, patented copper soap formula allows for impeccable coverage and adherence with none of the globular residue seen in other copper-based products. The true soap formulation also requires minimal elemental copper for excellent disease control, further emphasizing Camelot O's immaculate plant safety.

Features	Benefits
• Copper soap formulation	• Better leaf surface coverage while utilizing less copper resulting in unsurpassed efficacy
• Very low residue	• Improved safety to sensitive plant tissue and blooms
• Low 4 hour REI	• Get back to work faster
• OMRI	• Same superior protection for organic produce production
• Vegetable and herb label	• Spray your food crops and ornamentals with the same tank

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Camelot O Quick Facts	
Use Sites	Greenhouses/Shadehouses, Outdoor Nurseries, Greenhouse Vegetables, Fruits and Herbs, Landscape Plantings, Interiorscapes, Christmas Trees, Turf
Pests Controlled	**Bacterial Pathogens:** *Erwinia* spp., *Pseudomonas* spp., *Xanthomonas* spp. Bacterial Leaf Blight/Spot **Fungal Pathogens:** Anthracnose, Ascochyta Leaf Blight, Black Spot, *Botrytis* Blight, Cercospora Leaf Blight/Spot, Dollar Spot, Downy Mildew, Leaf Spots, Powdery Mildew, Rhizoctonia, Rusts, White Mold
Recommended Rate	0.5 - 2 gal/per 100 gallons
Application	Spray
Pre-Harvest Interval (PHI)	0 day
Restricted-Entry Interval (REI)	4 hours
Active Ingredient	Copper Octanoate (Copper Soap)
Mode of Action (FRAC Group)	Copper, Complex (M1)

CuPRO® 5000 Fungicide/Bactericide

The Original Copper Fungicide.

CuPRO 5000 Fungicide/Bactericide is an advanced copper fungicide/bactericide technology utilizes a very fine, irregular-shaped particle in a superior formulation that provides excellent disease control. The irregular-shaped particle has greater surface area on which more cupric ions can be stored and then released on the leaf surface for maximum coverage. The CuPRO 5000 formulation dissolves easily in for convenient mixing and application.

Features

- Highly irregular and small particles
- High quality copper source
- Excellent formulation
- Low risk of resistance

Benefits

- Maximum storage and release potential of cupric ions results in superior protection
- Ideal amount of available cupric ions
- Easy-to-use and mix into solution
- Great tool to incorporate into any IPM program

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CuPRO 5000 Quick Facts	
Use Sites	Greenhouses/Shadehouses, Outdoor Nurseries, Landscape Plantings, Christmas Trees
Pests Controlled	**Bacterial Pathogens:** *Erwinia* spp., *Pseudomonas* spp., *Xanthomonas* spp., Bacterial Leaf Blight/Spot **Fungal Pathogens:** Alternaria, Anthracnose, Black Spot, *Botrytis* Blight, Cercospora Leaf Blight/Spot, Dothistroma Needle Blight, Downy Mildew, Leaf Spots, Needlecasts, Phytophthora Dieback, Powdery Mildew, Tip Blight **Other Pests:** Ball and Spanish Moss, Lichens
Recommended Rate	1.5 - 5 lbs. per 100 gallons
Application	Spray
Restricted-Entry Interval (REI)	48 hours
Active Ingredient	Copper Hydroxide
Mode of Action (FRAC Group)	Multi-site activity (M1)

Decree® Fungicide

The Industry Standard for Botrytis Control.

Over time, Decree Fungicide has become industry standard for preventative and curative control of *Botrytis* blight. Top to bottom, Decree is unsurpassed in preventing infection of *Botrytis* spores and at the same time inhibiting sporulation. The active ingredient, Fenhexamid, inhibits germ tube elongation, penetration peg formation, and the most sensitive life cycle stage, hyphal growth. Decree has phenomenal plant safety and low visible residue making it the ideal fungicide to use on sensitive crops such as poinsettias. They don't call it "The Industry Standard for *Botrytis* Control" for nothing!

Features	Benefits
• Unsurpassed *Botrytis* control	• Industry standard for quick and complete eradication
• Protective and curative	• Allows for initial eradication and reduces future breakouts
• Excellent crop safety	• Improved safety to sensitive plant tissue and blooms—including poinsettias in color!
• Very low residue	• Maintain a sellable crop at all times
• Vegetable and herb label	• Spray your food crops and ornamentals with the same tank

Decree Quick Facts	
Use Sites	Greenhouses/Shadehouses, Greenhouse Vegetables and Herbs, Outdoor Nurseries, Forest Conifers, Non-bearing Fruit Trees and Vines
Pests Controlled	*Botrytis* Blight, Powdery Mildew (suppression)
Recommended Rate	0.75 - 1.5 lbs. per 100 gallons
Application	Spray
Pre-Harvest Interval (PHI)	**Leafy greens** • 3 days **Greenhouse vegetables** (tomatoes, peppers, cucumbers, etc.) • 0 days
Restricted-Entry Interval (REI)	12 hours
Active Ingredient	Fenhexamid
Mode of Action (FRAC Group)	Sterol biosynthesis in membranes (17)

Standard for preventative and curative Botrytis control.

Junction® Fungicide/Bactericide

A Powerful Combination.

Junction Fungicide/Bactericide is extremely versatile, providing excellent control of a broad-spectrum of fungal and bacterial pathogens. The two active ingredients, mancozeb and copper hydroxide work together to deliver maximum plant protection. Junction is available in water-soluble packets making it easy to handle, mix and apply.

Features
- Superior formulation
- Low risk of resistance
- Broad-spectrum disease control
- Very fine particle size

Benefits
- Easy to handle use and is easy on spray equipment
- Great tool to incorporate into any IPM program
- Eliminate multiple diseases as well as algae utilizing a single product
- Maximizes leaf surface coverage for increased plant protection

Junction Quick Facts	
Use Sites	Greenhouses/Shadehouses, Outdoor Nurseries, Landscape Plantings, Forest Conifers Non-bearing Fruit Trees and Vines
Pests Controlled	**Bacterial Pathogens:** *Erwinia* spp., *Pseudomonas* spp., *Xanthomonas* spp., Bacterial Leaf Blight/Spot **Fungal Pathogens:** Alternaria, Anthracnose, Black Spot, *Botrytis* Blight, Cercospora, Dothistroma Needle Blight, Downy Mildew, Leaf Spots, Needlecasts, Phytophthora, Powdery Mildew, Rust, Scab
Recommended Rate	1.5 - 3.5 lbs. per 100 gallons
Application	Spray
Restricted-Entry Interval (REI)	48 hours
Active Ingredient	Copper Hydroxide and Mancozeb
Mode of Action (FRAC Group)	Multi-site activity (M1 & M3)

Pipron® Fungicide

The Industry Standard for Curative Powdery Mildew Control.

Pipron Fungicide is another industry standard fungicide offered by SePRO. Pipron provides second-to-none curative powdery mildew control. As a highly effective contact fungicide, Pipron acts quickly to eradicate existing powdery mildew infections, leaving no visual residue. Pipron has been a utilized effectively for over 20 years with no evidence of resistance. For best results thoroughly apply Pipron to areas of new growth and areas already infected with powdery mildew.

Features
- Unsurpassed curative Powdery Mildew control
- Excellent crop safety
- No residue

Benefits
- A true eradicant even for the worst outbreaks
- Can be applied to tender plants and blooms
- Allows the radiant colors of flowers to persist

Pipron Quick Facts	
Use Sites	Greenhouses/Shadehouses
Pests Controlled	Powdery Mildew
Recommended Rate	4 - 8 fl. oz. per 100 gallons
Application	Spray
Restricted-Entry Interval (REI)	12 hours
Active Ingredient	Piperalin
Mode of Action (FRAC Group)	Sterol biosynthesis in membranes (5)

Obtego® Fungicide and Plant Symbiont

Always Active. Never Lazy.

Obtego Fungicide and Plant Symbiont serves as a multi-functional tool for growers by protecting the plant from damaging soil-borne pathogens and enhancing root growth.

Obtego contains two unique fungi-based active ingredients. The two species combine to form a powerful fungicide that is effective in a wide range of soil and environmental conditions. Obtego is highly effective against diseases such as *Pythium* spp., *Phytophthora* spp., *Rhizoctonia* spp. and more.

Verbena - Royal Romance

Untreated

5 oz. Obtego

Obtego and plant roots live in a mutually beneficial symbiosis. As Obtego colonizes the root system, the Obtego fungi promote competition and parasitism of plant damaging pathogens in the soil. In return, Obtego stimulates development of a robust root system. The end result is a healthy, high quality plant.

Features

- Biofungicide with efficacy comparable to traditional chemistries
- Broad use sites
- Multiple modes of action
- 4-hr REI and 0-day PHI
- Compatible with most fungicides
- Significant root enhancement

Benefits

- Reduced human and environmental risk with excellent disease control
- One product for indoor and outdoor use
- Minimal risk of resistance
- Minimal interference with daily operations
- Seamless integration into any IPM program
- Substantial plant quality improvement

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Obtego Quick Facts	
Use Sites	Greenhouses/Shadehouses, Outdoor Nurseries, Greenhouse Vegetables, Fruits and Herbs, Landscape Plantings, Interiorscapes, Christmas Trees, Turf
Pests Controlled	*Pythium* spp., *Phytophthora* spp., *Rhizoctonia solani, Sclerotinia* spp., *Fusarium* spp., *Sclerotium rolfsii., Verticillium dahlia, Armillaria mellea, Thielaviopsis basicola*
Recommended Rate	Dip: 0.25 - 2lbs./gal; Substrate mix: 0.5 - 1.5 lbs./cubic yard; Chemigation: 2.5 - 5 lbs./A; Drench: 2.5 - 7.5 oz./100 gal.
Pre-Harvest Interval (PHI)	0
Restricted-Entry Interval (REI)	0/4
Active Ingredient	*Trichoderma asperellum* strain ICC 080; *Trichoderma gamsii* strain ICC 012
Mode of Action (FRAC Group)	BM02 - multi MoAs

Zio® Fungicide

New World Plant Protectant

Zio Fungicide is a revolutionary bacteria hand-selected from a library of 60k+ microbes to protect plants against destructive diseases and improve quality. It colonizes the plant while producing compounds to control harmful plant pathogens including *Rhizoctonia* (Brown Patch), *Pythium,* and anthracnose. Zio has been scientifically proven to provide preventative control of resistant fungi utilizing multiple modes-of-action. Additionally, Zio can be mixed with traditional fungicides to enhance efficacy and minimize the risk of resistance development.

Features	Benefits
• Multiple modes of action	• Antimicrobial, enzymatic, and colonizing action prevent resistance development
• Broad-spectrum of activity	• Seemless integration into any disease management program
• Labeled for use on cool- and warm-season turf	• Excellent crop safety across multiple turf and ornamental species
• Improves turf and seed establishment	• Speed up grow-ins, reduce turf losses, and promote root growth
• OMRI listed	• Registered for organic use

Zio Quick Facts	
Use Sites	Turfgrass, seed and turf establishment, ornamental plants, fruit and vegetable transplants
Formulation	50% wettable powder
Active Ingredient	*Pseudomonas chlororaphis* strain AFS009
Mode of Action (FRAC Group)	Fungicidal/enzymatic + biological (BM02)
Restricted-Entry Interval (REI)	4 hours
Signal Word	Caution
Packaging	5 pound bag

How Zio Fights Disease, Inside and Out

One key characteristic that sets Zio apart is its multiple unique modes-of-action (MoA). There are three primary mechanisms it utilizes to protect plants.

- Halts fungal respiration, similar to synthetic fungicides
- Enzymatically breaks down fungal structures
- Colonizes plants and soil—competing with pathogens for vital resources

With 3 unique MoA, Zio can be used to successfully protect plants against fungi resistant to commonly used chemistries. Additionally, Zio can be mixed with traditional fungicides to enhance efficacy and minimize the risk of resistance development.

Ornamental Product Chart

Insecticides/Miticides

	Active Ingredient	Signal Word	Mode of Action	IRAC Code	REI (hours)	Use Sites	Use Rates (per 100 gal)	Affected Life Stage	Application
Akari	Fenpyroximate	Warning	METI	21A	12	G, N, V, L, I, C, FT	16 - 32 fl. oz.	Eggs Immatures Adults	Spray
Hachi-Hachi SC	Tolfenpyrad	Warning	METI	21A	12	G, N, L, C, FT	14 - 32 fl. oz.	Eggs Immatures Adults	Spray
Ornazin	Azadirachtin	Caution	Ecdysone Inhibitor	18B	12	G, N, V, L, I, C, FT	8 - 15 fl. oz.	Immatures	Spray
Rycar	Pyrifluquinazon	Caution	Behavior Modifier	9B	12	G, V	1.6 - 6.4 fl. oz.	Immatures Adults	Spray
Talus	Buprofezin	Caution	Chitin Inhibitor	16	12	G, N, V, L, C, FT	6 - 14 fl. oz.	Immatures Adults	Spray

Plant Growth Regulators

	Active Ingredient	Signal Word	Mode of Action	PGR Class	REI (hours)	Use Sites	Use Rates	Application
A-Rest	Ancymidol	Caution	GA Inhibitor	B	12	G, N, I	Various	Spray Drench
Cutless Granular	Flurprimidol	Caution	GA Inhibitor	B	n/a	G, N	Various	Topdress
SpinOut	Copper Hydroxide	Caution	–	–	n/a	Pots Fabrics	0 - 25% dilution	Spray, Dip, Paint
Topflor Liquid	Flurprimidol	Caution	GA Inhibitor	B	12	G, N	Various	Spray Drench

Fungicides/Bactericides

	Active Ingredient	Signal Word	Mode of Action	FRAC Code	REI (hours)	Use Sites	Use Rates (per 100 gal)	Application
Camelot O	Copper Octanoate	Caution	Multi-site Contact	M1	4	G, N, V, L, I, C, FT	0.5 - 2 gal	Spray
CuPRO 5000	Copper Hydroxide	Danger	Multi-site Contact	M1	48	G, N, L, C	1.5 - 5 lbs	Spray
Decree	Fenhexamid	Caution	Sterol Biosynthesis	17	12	G, N, V, L, C, FT	0.75 - 1.5 lbs	Spray
Junction	Copper Hydroxide & Mancozeb	Danger	Multi-site Contact	M1 & M3	48	G, N, L, C, FT	1.5 - 3.5 lbs	Spray
Obtego	*Trichoderma asperellum* strain ICC 080 & *Trichoderma gamsii* strain ICC 012	Caution	Bio-multi MOA	BM02	0/4	G, N, V, L, I, C, FT	2.5 - 7.5 oz.	Spray, Dip, Drench, Soil Incorporation, In-furrow
Pipron	Piperalin	Danger	Sterol Biosynthesis	5	12	G	4 - 8 fl. oz.	Spray
Zio	*Pseudomonas chlororaphis* strain AFS009	Caution	Bio-multi MOA	BM02	4	G, N, V, L, I, C, FT	67 - 100 oz.	Spray, Dip, Drench, Soil Incorporation, In-furrow

G = Greenhouse/shadehouse, N = Outdoor nursery, V = Greenhouse vegetables*, L = Landscape ornamentals, I = Interiorscapes, C = Christmas trees, FT = Non-bearing fruit and nut trees/vines. *Reference label for approved greenhouse vegetable crops.

Insects Controlled

	Aphids	Coleoptera	Fungus Gnats	Leaf/ Plant Hoppers	Lepidoptera larvae	Mealybugs	Mites	Psyllid	Scales	Thrips	Whiteflies
						● Suppress	●	●			● Suppress
	●	●		●	●	●			●	●	● Suppress
	●	●	●	●	●	●	●	●	●	●	●
	●					●				● Chilli	●
				●		●			●		●

Popular Crop Uses

Popular Species

	Bedding Plants	Herbaceous Perennial	Woody Ornamentals	Plugs	Bulb Crops	Poinsettia	Chrysanthemum	Begonia	Geranium	Petunia	Calibrachoa	Marigold	Rose
	●			●	●								
		●	●				●						●
		●	●										
	●	●	●		●	●	●	●	●	●	●	●	●

Fungal Pathogens

Bacterial Pathogens

	Alter-naria	Anthrac-nose	*Botrytis*	Downy Mildew	Fusarium	Leaf blight/ spot	Needle-cast/blight	Powdery mildew	Phytoph-thora	Pythium	Rhizoctonia	Rust	*Erwinia*	*Pseudo-monas*	*Xantho-monas*
		●	●	●		●		●			● Blight	●	●	●	●
	●	●	●	●		●	●	●				●	●	●	●
			●					● Suppress							
	●	●	●	●		●	●	●				●	●	●	●
					●				●	●	●				
								●							
		●	● Suppress						●	●	●				

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