PRODUCT GUIDE 2024

VALENT BIOSCIENCES®

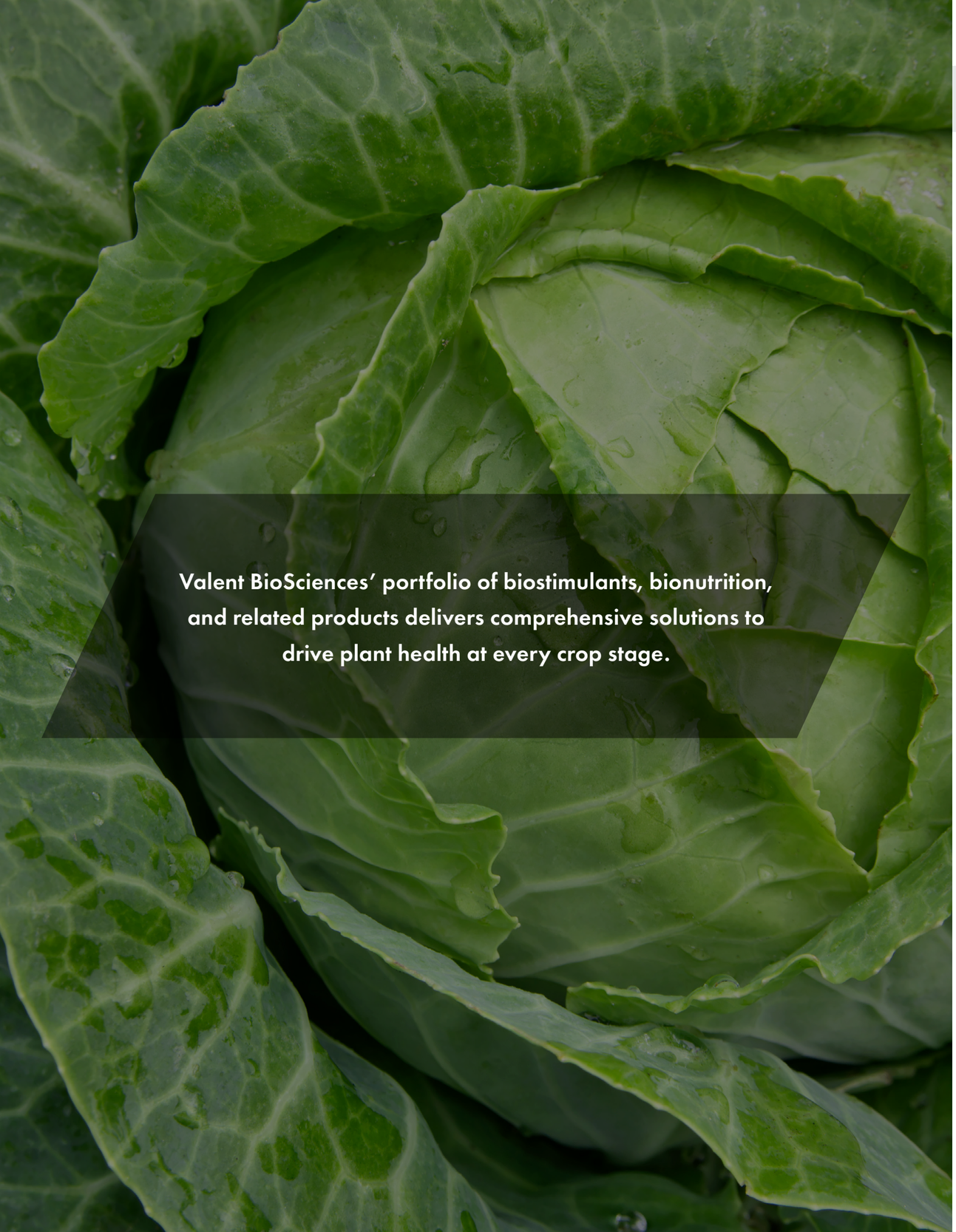
SUSTAINING GENERATIONS
THROUGH BIOSCIENCE

BIOSTIMULANTS
AND RELATED PRODUCTS

SUSTAINING GENERATIONS THROUGH BIOSCIENCE™

A global leader in biostimulant, bionutrition, and related product solutions, consistently delivering cutting-edge innovation to our customers to maximize ROI.

VALENT BIOSCIENCES®



Valent BioSciences' portfolio of biostimulants, bionutrition, and related products delivers comprehensive solutions to drive plant health at every crop stage.

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AND RELATED PRODUCTS ..... PGS. 6-23

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ORGANIC LISTED

BIONUTRITION ..... PGS. 24-41

Advanced nutrition solutions deliver natural chelates, organic acids, and other formulation enhancers to maximize plant availability and crop health in even the toughest growing conditions.

ORGANIC BIONUTRITION

COMPATIBILITY AIDS

BIOSTIMULANTS
AND RELATED PRODUCTS

Valent BioSciences has a robust and growing portfolio of next generation biostimulants and related products. As growers face an increasing demand for sustainably produced food with fewer resources, biostimulants are a vital tool to help them maximize their crop's yield potential, increase ROI, improve nutrient uptake and efficiency, and mitigate abiotic stress.

TRANSIT®

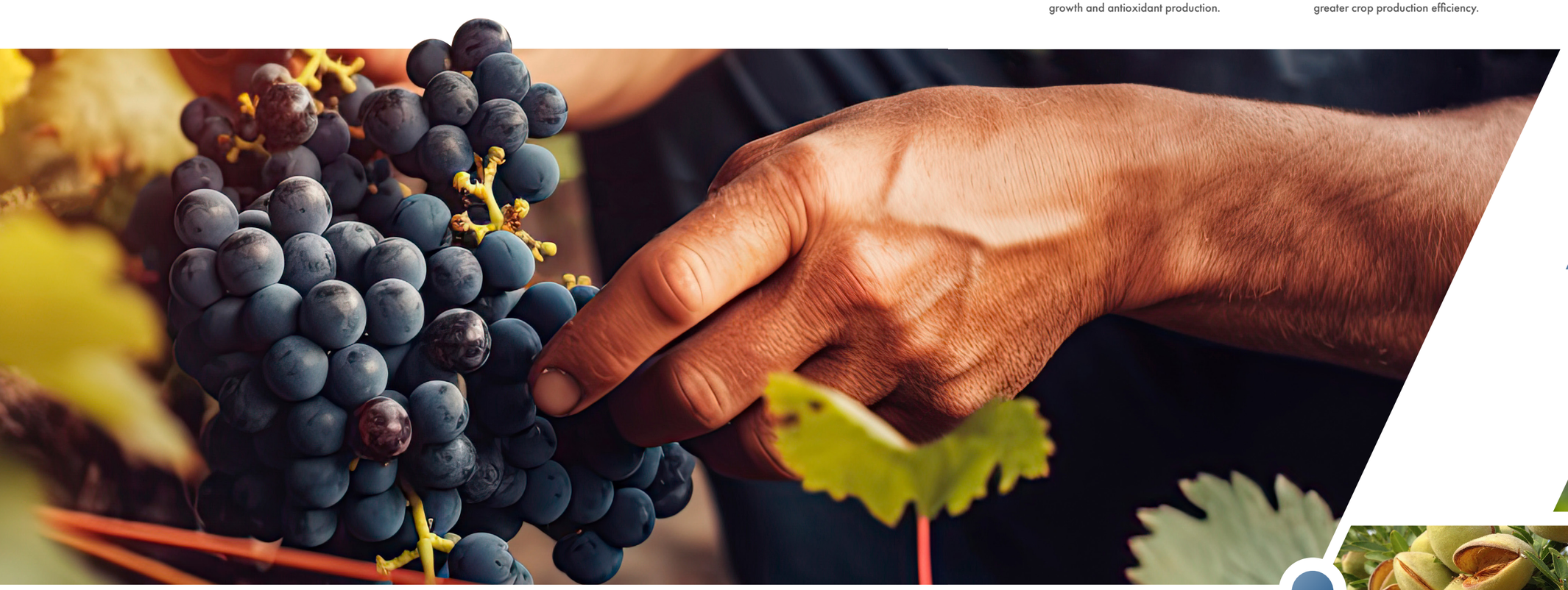
Transit® products are built with a foundation of complexed organic matter to promote early vigor and establishment and support natural processes that benefit nutrient uptake and stress mitigation, including root growth and antioxidant production.

SYMVADO®

Symvado® mycorrhizal inoculant products improve nutrient uptake and efficiency, optimize fertilizer availability, and increase water acquisition and retention for greater ROI. Using unique MycoApply® technology, these products positively impact the soil environment for greater crop production efficiency.

Proliant®

Proliant® is a gibberellic acid that promotes cell division, expansion, and elongation for enhanced early vegetative and root growth in corn. In pasture grass, Proliant can extend the grazing season by promoting growth in cold weather temperatures at the beginning and end of the season.



TRANSIT®

COMPLEXED ORGANIC MATTER

Transit® is a highly targeted organic acid formulation sourced from natural organic matter, originating from decomposed plant material. The most biologically active compounds, primarily lignin and tannin compounds, are targeted, extracted, and concentrated and when introduced to the plant are extremely beneficial to crop production.

TARGET **EXTRACT** **CONCENTRATE**

TRANSIT®

Transit® is a highly concentrated formulation that works inside the plant to improve plant health and grower ROI. Transit increases nutrient uptake, enhances fertilizer efficiencies, improves tolerance to and recovery from abiotic stress, and optimizes quality traits, all of which aid the plant's ability to improve root and shoot growth and increase biomass. The Transit line offers products for soil and foliar applications as well as solutions for organic production.
See pages 10-11 for details.

The Transit product line also includes a comprehensive line of bionutrition products that maximize nutrient uptake and availability for increased plant health and improved ROI.
See pages 24-41 for more details.

UNTREATED **TREATED**

NUTRIENT USE EFFICIENCY

Transit enhances natural processes in the plant that benefit nutrient uptake and efficiency including improved root growth for improved access and utilization of nutrient resources.

STRESS MITIGATION

Transit increases the tolerance to and recovery from stress events due to the complexed organic matter (COM) that contribute to the antioxidant effects, improving the plant's natural defenses.

EASY HANDLING & COMPATIBILITY

Transit is highly concentrated and compatible (low pH) for ease of application.

Transit Soil®

NUTRIENT USE EFFICIENCY ≈ pH 3.0

Soil-applied product that increases nutrient use efficiency, and improves abiotic stress mitigation and recovery, resulting in optimized plant health.

CROP TYPE	APPLICATION RATE & TIMING
In Furrow or Pop-up Fertilizers	Apply **6-8 ounces/acre** anytime during the growing season; Use higher rate with spray volume over 50 gallons/acre.
Banded, Broadcast, & Irrigation	Apply **8-12 ounces/acre** higher rates of fertilizer require the higher label rates.
Dry Granular Fertilizers	Impregnate **1.0-7.5 quarts** onto each ton of dry fertilizer depending on the final application of fertilizer in the field. Final applied fertilizer should carry **8-14 ounces/acre** of Transit Soil.
Walnuts & Cherries	Higher rates **(10-16 ounces/acre)**

GUARANTEED ANALYSIS

Zinc (Zn) 0.5%

0.50% Chelated Zinc

Derived from: zinc EDTA

For best results, use watered-in applications. May be applied via irrigation system or prior to irrigation. Apply enough water to move the product into the area of active rooting, but not excessive amounts that may leach. Use the higher label rates with surface and flood irrigation. Transit Soil is compatible with most fertilizers regardless of pH. However, a standard jar test is recommended before tank mixing.

Transit Foliar®

NUTRIENT USE EFFICIENCY ≈ pH 3.0

Foliar-applied product that increases nutrient use efficiency, optimizes fertilizer efficiency, and improves abiotic stress mitigation and recovery, resulting in optimized plant health. Formulated with a premium surfactant package to ensure adherence and even coverage of foliar applications.

CROP TYPE	APPLICATION RATE & TIMING
All Crops	Apply **6-15 ounces/acre** anytime during the growing season; Use higher rate with spray volume over 50 gallons/acre.

GUARANTEED ANALYSIS

Zinc (Zn) 0.5%

0.50% Chelated Zinc

Derived from: zinc EDTA.

DO NOT spray in the heat of the day or when the plant is under moisture stress. DO NOT spray to the point of runoff. Use as fine of a spray mist as possible. Allow 3-4 hours after application before sprinkler irrigating to avoid washing the product off. Transit Foliar mixes well with most other liquids, fertilizers, and wettable powders. A standard jar test is recommended before tank mixing. Only tank mix Transit Foliar with products where systemic uptake is desired. DO NOT mix with selective herbicides or crop oil concentrates without first consulting your local agronomist.

FBS Organics® Transit Soil

ORGANIC NUTRIENT USE EFFICIENCY ≈ pH 3.0

Soil-applied product for use in organic production that increases nutrient use efficiency, and improves abiotic stress mitigation and recovery, resulting in optimized plant health.

CROP TYPE	APPLICATION RATE & TIMING
In Furrow or Pop-up Fertilizers	Mix **6-8 ounces/acre** with applications near the seed.
Banded, Broadcast, & Irrigation	Apply **8-16 ounces/acre** higher rates of fertilizer require the higher label rates.
Dry Granular Fertilizers	Impregnate **1.0-7.5 quarts** onto each ton of dry fertilizer depending on the final application of fertilizer in the field. Final applied fertilizer should carry **8-16 ounces/acre** of FBS Organics Transit Soil.
Walnuts & Cherries	Higher rates **(10-20 ounces/acre)**

GUARANTEED ANALYSIS

Sulfur (S) 2.0%

2.0% Combined Sulfur

Zinc (Zn) 5.0%

5.0% Water Soluble Zinc

Derived from: zinc sulfate, complexed with lignosulfonate.

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers.

FBS Organics® Transit Duo

ORGANIC NUTRIENT USE EFFICIENCY ≈ pH 3.0

Soil or foliar-applied product for organic production that increases nutrient use efficiency, and improves abiotic stress mitigation and recovery, resulting in optimized plant health. This product's nitrogen analysis allows for use on the soil or the foliage without documenting a micronutrient deficiency.

CROP TYPE	APPLICATION RATE	TIMING
Foliar	**10-16 ounces/acre**	Any time during the growing season. Repeat as needed.
Soil	**12-20 ounces/acre**	

1-0-0

GUARANTEED ANALYSIS

Total Nitrogen (N) 1.0%

1.0% Water Soluble Nitrogen

Derived from: soy protein hydrolysate.

Shake well and/or agitate before use. Small amounts of sediment at the bottom are normal and will go back into solution once agitated.
For Foliar Applications: DO NOT spray in the heat of the day or when the plant is under moisture stress. DO NOT spray to the point of runoff. Use as fine of a mist as possible. Allow 3-4 hours after application before sprinkler irrigation to avoid washing off the product.
For Soil Applications: Use watered-in applications for best results. May be applied via irrigation system or prior to irrigation. Apply enough water to move the product into the area of active rooting, but not excessive amounts that may leach. Use the higher label rates with surface and flood irrigation. DO NOT mix with other products in concentrated form without first adding water.

Products described in this guide may be registered by FBSciences, Inc., or Valent BioSciences LLC; refer to product labels for more information. This is not the complete label; see label for complete Directions for Use. Always read and follow label instructions. For the full product warranty, terms and conditions, please visit www.warrantydetails.net or contact us at 1-877-696-4204. Tank mix compatibility is impacted by water quality. When mixing products, always establish compatibility using a standard jar test prior to tank mixing. Not all products listed are registered and available in all 50 states.

SYMVADO®

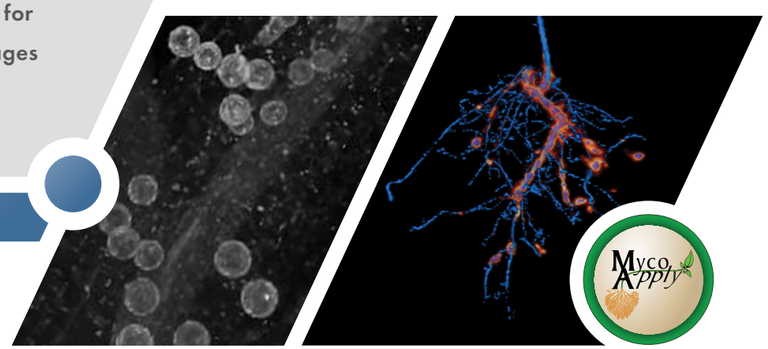
ARBUSCULAR MYCORRHIZAL FUNGI

Symvado® Arbuscular Mycorrhizal Fungi (AMF) products enhance crop success for greater ROI. Using our unique MycoApply® formulation, Symvado products improve nutrient uptake and efficiency, optimize fertilizer availability, and increase water acquisition and retention. They also positively impact the soil environment for greater crop production efficiency. Hyphae increase the plant's absorption area by up to 50x and the plant's access to nutrients and water by extending up to 10 inches beyond the roots.

Symvado has customized formulations for optimized application methods. See pages 14-17 for more details.

MycoApply®

Mycorrhizal fungi[1] form a symbiosis with the host plants. The growing root tips emit exudates which signal the fungal propagules (shown in picture on the left) to colonize the roots by means of a hyphal network (shown in picture on the right) and establish the mutualistic association.



[1]Arbuscular mycorrhizal fungi do not form associations with the following crops: blueberry, cranberry, lingonberry, pecan, hazelnut, brassica, and beet. For additional information, consult your crop advisor or Valent BioSciences (1-877-696-4204).

EXTEND

Hyphae increase the plant's absorption area by up to 50x.

ACCESS

Hyphae extend up to 10 inches beyond the roots, increasing access to nutrients and water.

UPTAKE

Hyphae uptake water and nutrients along their entire length and transport them back to the plant.

SYMVADO® Mycorrhizal Inoculant SC

State-of-the-art liquid formulation designed for a broad range of application types (including in-furrow, 2x2, drip, drench) that enhances plant, root, and soil health with MycoApply AMF by improving nutrient uptake and efficiency, optimizing fertilizer availability, and increasing water acquisition and retention for improved performance and higher ROI.

APPLICATION	USE RATE/ ACRE	INSTRUCTIONS
In-furrow, T-Band, 2x2	**2 fl oz/acre**	Maintain continuous agitation during mixing and application and inject downstream of any filters smaller than 50 mesh
Pre-plant Tray Drench	**2-3 fl oz/acre**	Ensure uniform saturation, with no more than 10% run through of the solution
Transplant Water	**2-3 fl oz/acre**	Ensure sufficient water is utilized to reach transplant roots
Bare Root, Seed Piece Spray/ Dip	**2-3 fl oz/acre**	Remove excess soil and completely spray roots or pieces to ensure thorough coverage
Banded, Side Dress	**3-4 fl oz/acre**	Maintain continuous agitation during mixing and application and inject downstream of any filters smaller than 50 mesh
Irrigation or chemigation Injection	**3-4 fl oz/acre**	Maintain continuous agitation during mixing and application and inject downstream of any filters smaller than 50 mesh. Target middle of the irrigation set.
Broadcast, Drench	**4-6 fl oz/acre**	Maintain continuous agitation during mixing and application and inject downstream of any filters smaller than 50 mesh

CONTAINS NON-PLANT FOOD INGREDIENTS:

Soil Amending Guaranteed Analysis

0.25% Total Active Ingredients

Glomus intraradice..... (381 propagules/ml)
Glomus mosseae..... (381 propagules/ml)
Glomus aggregatum ..... (381 propagules/ml)
Glomus etunicatum ..... (381 propagules/ml)

99.75% Total Inert Ingredients (Carrier)

Symvado SC can be mixed directly with some additives, adjuvants, biocontrol products, fungicides, herbicides, insecticides, liquid fertilizers, and with water. Do not tank-mix Symvado SC with other products unless compatibility has been verified. If considering tank-mixing Symvado SC with other products use the following compatibility jar test before mixing an entire tank: Add water from the same water source to a clear glass or plastic jar. Add the products in correct proportions. Mix thoroughly and let stand for a minimum 15 minutes. Separation, gelling, or generation of heat are all signs of incompatibility. See label for complete Directions for Use.

SYMVADO® Mycorrhizal Inoculant ST

Liquid seed treatment that enhances plant, root, and soil health with MycoApply AMF by improving nutrient uptake and efficiency, optimizing fertilizer availability, and increasing water acquisition and retention for improved performance and higher ROI.

CONTAINS NON-PLANT FOOD INGREDIENTS:

Soil Amending Guaranteed Analysis

8.73% Total Active Ingredients

Glomus intraradices ..... (5,625 propagules/ml)
Glomus mosseae.....(5,625 propagules/ml)
Glomus aggregatum ..... (5,625 propagules/ml)
Glomus etunicatum ..... (5,625 propagules/ml)

91.27% Total Inert Ingredients (Carrier)

CROP TYPE	USE RATE/ACRE	INSTRUCTIONS
Cereals (Wheat [Spring, Winter, Durum], Barley, Oats, Rye, Sorghum, Triticale, Popcorn, Millet)	**0.19 fl oz per 100lbs of seed (6.19ml per 50 kg of seed)**	Application rate is based on 70 lbs of seeds per acre of planting. Apply sufficient volume of seed treatment mixture to provide adequate coverage and distribution of the seed.
Corn (Field corn grown for grain and silage, Field corn grown for seed, Popcorn, Sweet corn, Sweet corn grown for seed)	**0.35 fl oz per 80,000 seeds (10.35ml per 80,000 seeds)**	Apply sufficient volume of seed treatment mixture to provide adequate coverage and distribution of the seed.
Rice (Hybrid)	**0.65 fl oz per 100lbs of seed (21.20ml per 50 kg of seed)**	Conventional rice rate based on seeding rate of 70 lbs per acre. Apply sufficient volume of seed treatment mixture to provide adequate coverage and distribution of the seed.
Rice (Conventional)	**0.19 fl oz per 100lbs of seed (6.19 ml per 50kg of seed)**	Hybrid rice rate is based on seeding rate of 20 lbs per acre. Apply sufficient volume of seed treatment mixture to provide adequate coverage and distribution of the seed.
Legumes (Soybean, Dry Bean, Succulent Bean, Dry Pea, Lupine, Chickpea)	**0.13 fl oz per 140,000 seeds (3.85ml per 140,000 seeds)** **0.26 fl oz per 100lbs of seed (8.48ml per 50kg of seed)**	Apply sufficient volume of seed treatment mixture to provide adequate coverage and distribution of the seed. Plant treated seed within 30 days of treatment.
Sorghum	**0.35 fl oz per 100,000 seeds**	Apply sufficient volume of seed treatment mixture to provide adequate coverage and distribution of the seed. Plant treated seed within 30 days of treatment.
Cotton	**0.32 fl oz per 100,000 seeds (9.47ml per 100,000 seeds)**	Apply sufficient volume of seed treatment mixture to provide adequate coverage and distribution of the seed.
Forages (Alfalfa, Velvet Bean, Clover, Lespedeza, Lupin, Vetch, Sainfoil, Trefoil)	**1.3 fl oz per 100lbs of seeds** **(42.38 ml per 50kg of seeds)**	Apply sufficient volume of seed treatment mixture to provide adequate coverage and distribution of the seed.
Sunflower	**0.72 fl oz per 100lbs of seeds** **(23.48ml per 50kg of seeds)**	Apply sufficient volume of seed treatment mixture to provide adequate coverage and distribution of the seed. Plant treated seed within 30 days of treatment.

Pre-test tank mixtures with other seed treatment products to evaluate formulation compatibility and to ensure proper physical compatibility of products. Follow more restrictive limitations or cautions on labels of all products used in a seed treatment mixture. Do not tank mix with any products which contain a prohibition on tank mixing. See label for complete Directions for Use.

SYMVADO GRANULAR Mycorrhizal Inoculant

Granular product for use in conventional or organic production that promotes plant, root, and soil health with MycoApply AMF by improving nutrient uptake and efficiency, optimizing fertilizer availability, and increasing water acquisition and retention for enhanced performance and higher ROI.

USE RATE	INSTRUCTIONS
Banded, Side Dress	**Apply 1.5 – 2.0 Lbs/acre**

CONTAINS NON-PLANT FOOD INGREDIENTS:

Soil Amending Guaranteed Analysis

0.03% Total Active Ingredients

Funneliformis mosseae ..... (33.1 propagules/g)
Rhizophagus intraradices ..... (33.1 propagules/g)
Claroideoglomus etunicatum .....(33.1 propagules/g)
Claroideoglomus claroideum .....(33.1 propagules/g)
99.97% Total Inert Ingredients (Clay)

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SYMVADO Mycorrhizal Inoculant WSP

Water soluble pod placed directly in planting hole for tree and vine establishment that enhances plant, root, and soil health with MycoApply AMF by improving nutrient uptake and efficiency, optimizing fertilizer availability, and increasing water acquisition and retention for improved performance and higher ROI.

USE RATE	INSTRUCTIONS
1 pod per planting hole	**At planting, add one water soluble pod to each planting hole**

CONTAINS NON-PLANT FOOD INGREDIENTS:

Soil Amending Guaranteed Analysis

0.03% Total Active Ingredients

Funneliformis mosseae ..... (33 propagules/g)
Rhizophagus intraradices ..... (33 propagules/g)
Claroideoglomus etunicatum ..... (33 propagules/g)
Claroideoglomus claroideum ..... (33 propagules/g)
99.97% Total Inert Ingredients (Clay)

SYMVADO Mycorrhizal Inoculant ORGANIC

Dry formulation designed for drip, broadcast, or drench applications in organic production to promote plant, root, and soil health with MycoApply AMF by improving nutrient uptake and efficiency, optimizing fertilizer availability, and increasing water acquisition and retention for improved performance and higher ROI.

CROP TYPE	USE RATE/ACRE	INSTRUCTIONS
In-furrow, 2x2	**4 grams/acre 0.1 oz/acre**	Maintain continuous agitation during mixing and application and inject downstream of any filters smaller than 50 mesh
Pre-plant Tray Drench	**4-6 grams/acre 0.1-0.2 oz/acre**	Ensure uniform saturation, with no more than 10% run through of the solution
Transplant Water	**4-6 grams/acre 0.1-0.2 oz/acre**	Ensure sufficient water is utilized to reach transplant roots
Bare Root, Seed Piece Spray/Dip	**4-6 grams/acre 0.1-0.2 oz/acre**	Completely spray roots or pieces to ensure thorough coverage
Banded, Side Dress	**6-8 grams/acre 0.2-0.3 oz/acre**	Maintain continuous agitation during mixing and application and inject downstream of any filters smaller than 50 mesh
Irrigation or chemigation Injection	**6-8 grams/acre 0.2-0.3 oz/acre**	Maintain continuous agitation during mixing and application and inject downstream of any filters smaller than 50 mesh. Target middle of the irrigation set
Broadcast, Drench	**8-10 grams/acre 0.3-0.4 oz/acre**	Maintain continuous agitation during mixing and application and inject downstream of any filters smaller than 50 mesh

CONTAINS NON-PLANT FOOD INGREDIENTS:

Soil Amending Guaranteed Analysis

6.6% Total Active Ingredients

Glomus intraradices ..... (5,625 propagules/ml)
Glomus mosseae ..... (5,625 propagules/ml)
Glomus aggregatum ..... (5,625 propagules/ml)
Glomus etunicatum ..... (5,625 propagules/ml)
93.4% Total Inert Ingredients (Carrier)

OMRI LISTED For Organic Use - OMRI.org

Symvado Organic can be mixed directly with some additives, adjuvants, biocontrol products, fungicides, herbicides, insecticides, liquid fertilizers, and with water. Do not tank-mix Symvado Organic with other products unless compatibility has been verified. If considering tank-mixing Symvado Organic with other products use the following compatibility jar test before mixing an entire tank: Add water from the same water source to a clear glass or plastic jar. Add the products in correct proportions. Mix thoroughly and let stand for a minimum 15 minutes. Separation, gelling, or generation of heat are all signs of incompatibility.

Always read and follow all label directions and precautions for each product. When using combinations of products, the most restrictive label limitations and precautions must be followed. Do not mix Symvado Organic with any product that has a prohibition against tank- mixing. See label for complete Directions for Use.

SYMVADO Ultrafine Mycorrhizal Inoculant

Fine powder for use as a seed coating in conventional or organic production that enhances plant, root, and soil health with MycoApply AMF by improving nutrient uptake and efficiency, optimizing fertilizer availability, and increasing water acquisition and retention for improved performance and higher ROI.

USE RATE	INSTRUCTIONS
Broadcast	**Apply 7-10 Lbs/acre**
Seed Coat	**Apply 1 Lb/acre to seeds prior to planting. To ensure uniform distribution, continuously add to hopper box while filling with seed.**

CONTAINS NON-PLANT FOOD INGREDIENTS:

Soil Amending Guaranteed Analysis

0.09% Total Active Ingredients

Funneliformis mosseae.....(71.7 propagules/g)
Rhizophagus intraradices .....(71.7 propagules/g)
Claroideoglomus etunicatum.....(71.7 propagules/g)
Claroideoglomus claroideum.....(71.7 propagules/g)
99.91% Total Inert Ingredients (Clay)

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PROLIANT® PLANT GROWTH REGULATOR

GIBBERELLIC ACID (GA3)

Proliant®

Proliant® Plant Growth Regulator is a unique water soluble formulation containing gibberellic acid (GA3) that maximizes silage corn tonnage while retaining nutrition quality – AND extends the grazing season on perennial grasses for higher ROI. Proliant is used to enhance root and vegetative growth in silage corn and stimulate dry matter production for grazing and forage grass when cool season conditions limit growth rates for a stronger, more stress-tolerant crop with increased capacity for greater yields. Gibberellins in Proliant stimulate early- and late-season growth and vigor, resulting in stronger leaf and stem development.

INCREASE CORN AND PASTURE GRASS YIELD

Proliant creates a stronger, more stress-tolerant corn crop with increased capacity for greater yields. For pasture grass, Proliant increases forage production under cool conditions, resulting in more hay, silage, or green chop at harvest.

EXTEND GRAZING SEASON FOR PASTURE GRASS

A spring application of Proliant can "wake up" pasture grass and start its growth in cold temperatures 2-3 weeks earlier. Proliant also extends the grazing season at the end of the season as temperatures decline.

EXPERIENCE FLEXIBILITY IN APPLICATION

The V2–V5 stage application timing for Proliant allows it to be used in a tank mix with standard applications of some herbicides, fungicides, and/or non-phytotoxic fertilizers.

TREATED UNTREATED

Proliant®

PLANT GROWTH REGULATOR
WATER SOLUBLE GRANULE

Proliant® Plant Growth Regulator is a unique water soluble formulation containing gibberellic that promotes cell division, expansion, and elongation for enhanced early root and vegetative growth in corn. In pasture grass, Proliant can extend the grazing season by promoting growth in cold weather temperatures at the beginning and end of the season.

For Organic Production

Active Ingredient:
Gibberellin A_3 ..... 40.0%
Other Ingredients 60.0%
TOTAL 100.0%

Contains a total of 1 g of Gibberellic Acid in 2.5 g of product.

EPA Reg. No. 73049-1
EPA Est. No. 33762-IA-001 List No. A5602

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CORN - FIELD USES

OBJECTIVE/ BENEFIT: To increase yield and help overcome the effects of heat or drought.

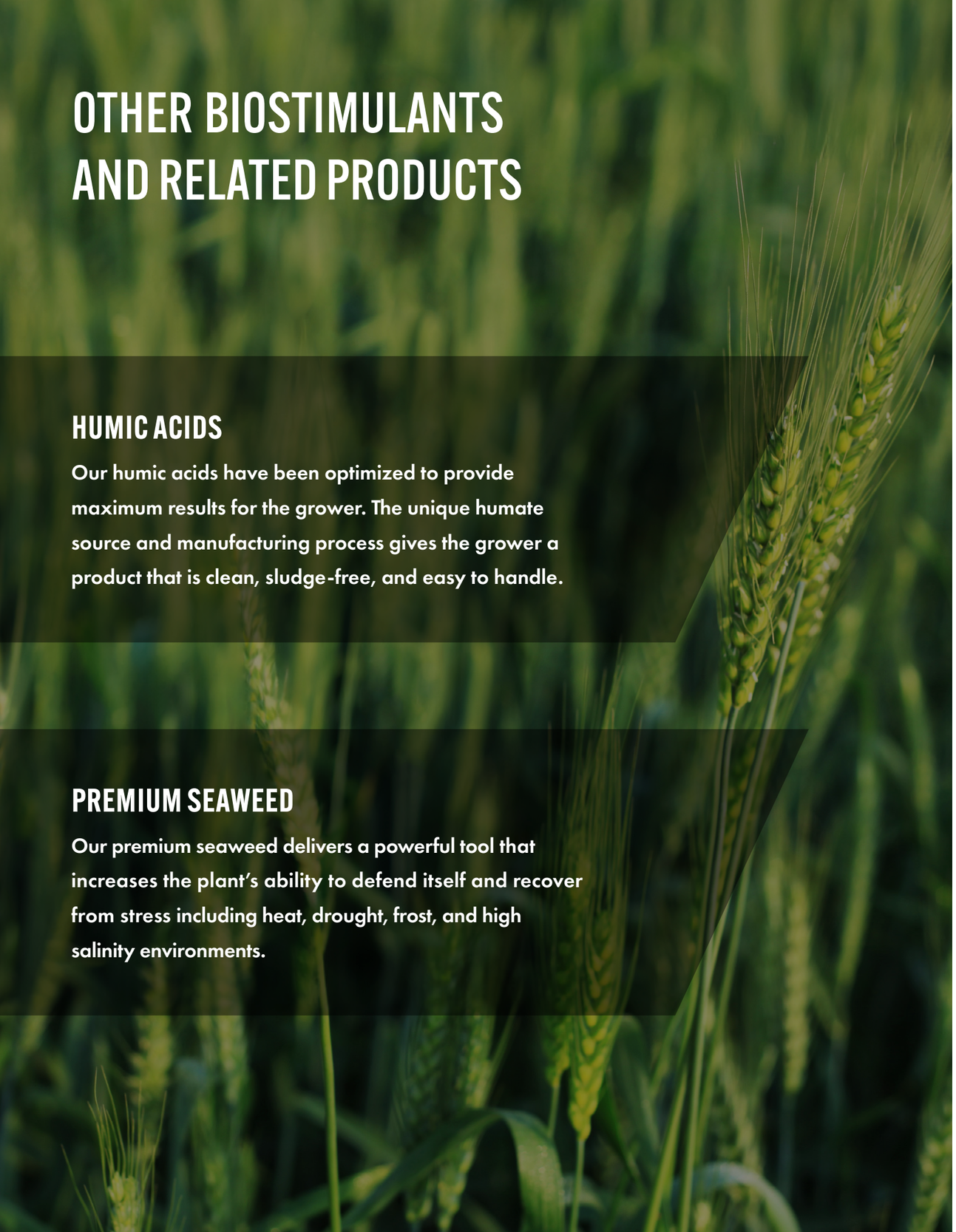
CROP TYPE	USE RATE/ACRE	APPLICATION TIMING
Corn: Field, Silage	2 - 6 g a.i. 5 - 15 g product 0.3 - 0.6 oz product	Apply at V2 - V6
Corn: Popcorn, Sweet corn, Seed corn	2 - 6 g a.i. 5 - 15 g product 0.3 - 0.6 oz product	Apply at V2 - V6

PASTURES & FORAGE – FIELD USES

OBJECTIVE/ BENEFIT: To stimulate dry matter production for grazing, hay, green chop or silage when cool season conditions limit growth rates.

CROP TYPE	USE RATE/ACRE	APPLICATION TIMING
Perennial Forage Grasses	3 - 11 g a.i. 7.5 - 27.5 g product 0.3 - 1.0 oz product	Spring Application: 1 - 3 applications every 3 - 4 weeks starting at green up after 1 - 2 inches of new shoot growth has emerged. Autumn Application: 1 - 3 applications every 3 - 4 weeks starting when forage growth has slowed due to cool temperatures. Best response occurs when average daily temperatures are between 40° F - 60° F and adequate moisture and nutrition are present.
Annual Forage Grasses	3 - 11 g a.i. 7.5 - 27.5 g product 0.3 - 1.0 oz product	Apply 1 - 6 applications every 3 - 4 weeks from autumn to early spring during periods of suboptimal growth due to cool temperatures. If applying to over-seeded pasture or newly established pasture, apply only after seedlings are well established. Best response occurs when average daily temperatures are between 40° F - 60° F and adequate moisture and nutrition are present.
Timothy Hay	0.3 - 1.0 oz product	Spring Application: apply when forage growth is slow due to cool temperatures. After Cutting: Apply 7 - 14 days after cutting to promote growth.
Cereal Grains (such as barley, oats, rye, sorghum, wheat, triticale)	3 - 11 g a.i. 7.5 - 27.5 g product 0.3 - 1.0 oz product	Spring Application: apply when forage growth is slow due to cool temperatures. After Cutting: Apply 7 - 14 days after cutting to promote growth.
Winter Brassicas (such as turnip, kale, rape)	3 - 11 g a.i. 7.5 - 27.5 g product 0.3 - 1.0 oz product	Spring Application: apply when forage growth is slow due to cool temperatures. After Cutting: Apply 7 - 14 days after cutting to promote growth.

Proliant should not be tank-mixed with synthetic auxin (Group 4) herbicides e.g., 2,4-D, dicamba. Proliant can enhance activity of certain HPPD (Group 27) herbicides, which could result in increased crop sensitivity. See label for complete Directions for Use.



OTHER BIOSTIMULANTS AND RELATED PRODUCTS

HUMIC ACIDS

Our humic acids have been optimized to provide maximum results for the grower. The unique humate source and manufacturing process gives the grower a product that is clean, sludge-free, and easy to handle.

PREMIUM SEAWEED

Our premium seaweed delivers a powerful tool that increases the plant's ability to defend itself and recover from stress including heat, drought, frost, and high salinity environments.

FBS Humate Plus™

HUMIC ACIDS ≈ pH 10.0-11.5

Highly concentrated 19% humic acids product allows for a low use rate. The unique humate source and manufacturing process deliver a clean, sludge-free, and easy-to-handle product. This premium product increases cation exchange capacity (CEC), promotes healthier soils, and increases water and nutrient retention.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	**2 pints/acre**	Apply at anytime. Repeat as needed.
All Other Crops	**1-2 pints/acre**	

0-0-5
GUARANTEED ANALYSIS
Soluble Potash (K_2O).....5.0%
Derived from: potassium hydroxide.
ALSO CONTAINS NONPLANT FOOD INGREDIENT
19% Humic Acids derived from Leonardite

FBS Humate Plus is compatible with many fertilizers. DO NOT mix FBS Humate Plus with fertilizers that contain calcium (like CN-9 or CAN-17). FBS Humate Plus is a concentrated, thick viscous 19% Humic Acids product that needs to be diluted with water prior to adding to the final tank mix. Please see FBSciences Compatibility Chart for more details. Always conduct a standard jar test before mixing with other products. Tank mix compatibility is impacted by water quality, which may vary by location. Confirm compatibility beforehand or consult your local agronomist for specific advice.

FBS Organics® Humate Plus

ORGANIC HUMIC ACIDS ≈ pH 10.0-11.5

Highly concentrated humic acids product for use in organic production has a 17% humic acids content, allowing for a low use rate. The unique humate source and manufacturing process deliver a clean, sludge-free, and easy-to-handle product. This premium humic acids product increases cation exchange capacity (CEC), promotes healthier soils, and increases water and nutrient retention.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	**2-4 pints/acre**	Apply at anytime. Repeat as needed.
All Other Crops	**1-4 pints/acre**	

0-0-4
GUARANTEED ANALYSIS
Soluble Potash (K_2O) 4.0%
Derived from: potassium hydroxide.
ALSO CONTAINS NONPLANT FOOD INGREDIENT
17% Humic Acids derived from Leonardite

FBS Organics Humate Plus is compatible with many fertilizers. DO NOT mix FBS Organics Humate Plus with fertilizers that contain calcium (like CN-9 or CAN-17). FBS Humate Plus is a concentrated thick viscous 17% Humic Acids product that needs to be diluted with water prior to adding to the final tank mix. Please see FBSciences Compatibility Chart for more details. Always conduct a standard jar test before mixing with other products. Tank mix compatibility is impacted by water quality, which may vary by location.

Ocean Swell™

PREMIUM SEAWEED ≈ pH 8.5

Premium seaweed product that increases the plant's ability to defend itself and recover from stress including heat, drought, frost, and high salinity environments. The system of anti-stress compounds, including antioxidants, work across multiple metabolic pathways so the plant is able to thrive in a wide range of growing conditions.

CROP TYPE	APPLICATION RATE	TIMING
Foliar	**2-8 pints/acre**	Repeat as needed every 3-4 weeks.
Soil	**1-4 quarts/acre**	

0-0-1
GUARANTEED ANALYSIS
Soluble Potash (K_2O).....1.0%
Derived from: *Ascophyllum nodosum* and potassium hydroxide.

Shake well and/or agitate before each use. DO NOT mix in concentrated form with any other tank additive without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. A standard jar test is recommended before tank mixing.

BIONUTRITION

Valent BioSciences' comprehensive nutrition portfolio of 30+ products combines expert formulation and advanced nutrition to maximize nutrient efficiency, plant health, and yield.

SOIL PRODUCT ADVANTAGES

MOBILITY Organic acids are recognized by the plant, aiding in easy mobilization. This does not happen as readily with foreign substances such as EDTA, which can also strip calcium from the cells.

REDUCED STRESS All soil products mitigate and assist with recovery from abiotic stresses including moisture, cold, salt, drought, and heat stress.

CHELATED Naturally chelating organic acids protect the nutrients from tie-ups in the soil across a wide range of conditions, including highly alkaline, high bicarbonates, and acidic soils.

RAPID UPTAKE These natural products are familiar to the roots and work within an established system for immediate uptake, unlike synthetic materials.

ENRICHES RHIZOSPHERE These products are also beneficial to soil microbiology, providing a healthy energy source for the microbiome and boosting soil health.

NATURALLY ACIDIC Most products have a low pH which is highly beneficial to the root environment. This acidity buffers against high pH water, helping free up other nutrients in the soil.

FOLIAR PRODUCT ADVANTAGES

INCREASED FOLIAR PENETRATION
Low molecular weight organic acids assist nutrient in mobility through the cuticle.

INCREASED NUTRIENT AVAILABILITY
Natural chelates protect nutrients from binding together for increased mobility.

CROP SAFETY
Crop safety enhancers reduce leaf burn and phytotoxicity.

PHLOEM MOBILITY
Decreases nutrient binding proteins, facilitating nutrient mobility in the phloem.

INCREASED COMPATIBILITY
Reduces antagonism in the tank by preventing nutrients from being bound to one another or to minerals in the spray water.

REDUCED STRESS FROM APPLICATIONS
Including pesticides, crop oils and other adjuvants, fertilizer salt stress, and post-application heat stress.

TRANSIT®

NUTRIENT ANALYSIS BY PRODUCT

ADVANCED NUTRITION

PAGE		PRODUCT	NPK			SECONDARY			MICRONUTRIENTS										pH
			N	P_2O_5	K_2O	Ca	Mg	S	B	Cl	Co	Cu	Fe	Mn	Mo	Na	Ni	Zn	
28		**BenePhite Expand**		19							0.05		0.75	1.75	0.1			4	≤ 2.0
28		**BorCAN Soil**	1						5										≈ 8.0
28		**BoronBoost Foliar**							6										≈ 8.0
29		**BoronBoost Soil**							6										≈ 8.0
29		**BounceBack Foliar**	4			8													≈ 6.5
29		**Calron Soil**	3			8													≤ 2.0
30		**CellMate Foliar Plus Mo**	3			8			0.5						0.2				≈ 3.5
30		**ChloroDrive Foliar**					2	4						2				2	≈ 3.0
30		**CopCAN Soil**	1									5							≤ 2.0
31		**Copron Foliar**						2.5				5							≤ 2.0
31		**Copron Soil**						2.5				5							≤ 2.0
31		**DriveKP**		19	26										0.05				≈ 9.5
32		**FlexCAN Soil**	1										1	1				3	≤ 2.0
32		**FlexForce Foliar**	1										2	1				3	≤ 2.0
32		**FlexForce Soil**	1										2	1				3	≤ 2.0
33		**GreenSurge Foliar**					4	5											≈ 6.0
33		**K-Surge**			20				0.05						0.03				≈ 8.0

Foliar Applied Nutrition | Soil Applied Nutrition | CN Compatible Nutrition | Phosphite Nutrition | Seed Treatment

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PRODUCT GUIDE 2024

Advanced nutrition solutions deliver natural chelates, organic acids, and other formulation enhancers to maximize plant availability and crop health in even the toughest growing conditions.

PAGE		PRODUCT	NPK			SECONDARY			MICRONUTRIENTS										pH
			N	P_2O_5	K_2O	Ca	Mg	S	B	Cl	Co	Cu	Fe	Mn	Mo	Na	Ni	Zn	
34		**ManCAN Soil**	1											5					≤ 2.0
34		**Manron Foliar**						3						5					≈ 2.5
34		**Manron Soil**						3						5					≈ 2.0
35		**MicroBlend Foliar Zn-Mn-B**						3	0.5					3				3	≈ 2.5
35		**MicroBlend Foliar Zn-Mn-Cu**						3				1		3				3	≤ 2.0
36		**MicroBlend Soil Zn-Mn-Cu**						3				1		3				3	≤ 2.0
36		**Phosron Foliar**	7	21	3										0.2				≈ 7.0
36		**Phosron Soil**	7	21											0.001			0.2	≈ 7.0
37		**PhotoGreen Foliar**						3					5	1					≤ 2.0
37		**PhotoGreen Soil**						3					5	1					≈ 1.5
39		**SloN Plus**	28																≈ 10.0
39		**SuperSede Small Grains**						1						0.9				2.25	≈ 3.0
39		**SuperSede Soybean**							0.2		0.05				5			0.5	≈ 8.5
40		**ZiCAN Soil**	2											1				6	≤ 2.0
40		**Zicron Foliar**						3						1				6	≈ 3.0
40		**Zicron Soil**						3						1				6	≈ 2.0
41		**FBS Organics Zicron**						3						1				6	≤ 2.0

Foliar Applied Nutrition | Soil Applied Nutrition | CN Compatible Nutrition | Phosphite Nutrition | Seed Treatment

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BenePhite™ Expand

ADVANCED PHOSPHITE BIONUTRITION ≈ ≤ pH 2.0

Premium phosphite product formulated with specific nutrients that work in combination to improve photosynthetic activities for increased photosynthate production for improved canopy function and root health. The synergies of this formulation deliver all the benefits of phosphites while mitigating the drawbacks.

CROP TYPE	APPLICATION RATE	TIMING
Foliar All Crops	**1-8 pints/acre**	Repeat every 2-3 weeks as needed.
Soil All Crops	**2-6 quarts/acre**	Repeat every 2-3 weeks as needed.

BenePhite Expand is compatible with many fertilizers and pesticides, however, a jar test is recommended when considering blends. The product's low pH should be considered when making blends. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. Ensure agitation is available when mixing with calcium fertilizers. DO NOT APPLY with citrus oils at over 0.5% of a tank mix, or petroleum oils over 1% of tank mix. DO NOT APPLY with copper-based fungicides.

0-19-0
GUARANTEED ANALYSIS
Total Phosphoric Acid (P_2O_5) 19.0%
Cobalt (Co) 0.05%
Iron (Fe) 0.75%
Manganese (Mn) 1.75%
Molybdenum (Mo) 0.10%
Zinc (Zn) 4.0%
Derived from: Phosphorous acid, zinc phosphite, manganese phosphite, iron phosphite, cobalt nitrate, and sodium molybdate.

BorCAN™ Soil

CALCIUM NITRATE COMPATIBLE ≈ pH 8.0

Delivers the performance and technology of our top-performing phloem mobile boron product, BoronBoost® Soil, and optimizes it to mix with calcium nitrate fertilizers, including CAN-17 and CN-9, for outstanding tank compatibility.

CROP TYPE	APPLICATION RATE	TIMING
All Other Crops	**1-6 pints/acre**	Apply any time during growing season; repeat as needed.

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. Ensure agitation is available when mixing with calcium fertilizers For best results, DO NOT store combined with calcium nitrate or comparable products more than 72 hours when agitation is not available. A standard jar test is recommended before tank mixing.

1-0-0
GUARANTEED ANALYSIS
Total Nitrogen (N)..... 1.0%
1.0% Water Soluble Nitrogen
Boron (B) 5.0%
Derived from: boron ethanolamine.

BoronBoost® Foliar

BORON BIONUTRITION ≈ pH 8.0

Premium boron product that facilitates the mobility of boron in the phloem to growing points and reproductive organs. Supports pollination, cell wall strength, and sugar metabolism. Increases calcium and potassium efficiency.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	**1-8 pints/acre**	Apply any time during growing season; repeat as needed. Use the higher rate with spray volume greater than 50 gallons/acre.
All Other Crops	**1-4 pints/acre**	Anytime during growing season, repeat as needed.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. A standard jar test is recommended before tank mixing.

GUARANTEED ANALYSIS
Boron (B) 6.0%
Derived from: boric acid.

BoronBoost® Soil

BORON BIONUTRITION ≈ pH 8.0

Soil-mobile boron complexed with humic acids to prevent it from binding with calcium for enhanced uptake and movement to the growing points. Supports root development, pollination, cell wall strength and sugar metabolism. Promotes movement of boron to fruiting structures for increased fruit quality and retention.

CROP TYPE	APPLICATION RATE	TIMING
All Other Crops	**1-6 pints/acre**	Apply any time during growing season; repeat as needed.

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. A standard jar test is recommended before tank mixing.

GUARANTEED ANALYSIS
Boron (B) 6.0%
Derived from: boric acid.
ALSO CONTAINS NONPLANT FOOD INGREDIENT
0.6% Humic Acids derived from Leonardite

BounceBack® Foliar 4-0-0

CALCIUM BIONUTRITION ≈ pH 6.5

Delivers highly available calcium for superior foliar uptake and mobility in the plant. Provides rapid heat stress relief for crops under photosynthetic and respiration stress. Improves recovery, reduces respiration rates, delays senescence, and prevents root system damage.

CROP TYPE	APPLICATION RATE	TIMING
All Crops	**1-6 quarts/acre**	Apply anytime during the growing season; repeat as needed. The higher rates should be used for orchards and vineyards when using spray volume greater than 50 gallons per acre.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with sulfate fertilizers. A standard jar test is recommended before tank mixing.

4-0-0
GUARANTEED ANALYSIS
Total Nitrogen (N) 4.0%
4.0% Nitrate Nitrogen
Calcium (Ca) 8.0%
Derived from: calcium gluconate and calcium nitrate.

Calron® Soil

CALCIUM BIONUTRITION ≤ pH 2.0

Delivers highly soluble, complexed calcium that does not tie up in the soil. The acidic properties help dissolve and release calcium present in the soil, and root exudates and natural chelates help make it immediately available to the plant. Lower nitrogen content is ideal during fruit growth when calcium is desired, but excess nitrogen is not.

CROP TYPE	APPLICATION RATE	TIMING
All Crops	**1-8 quarts/acre**	Apply any time during growing season; repeat as needed.

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with sulfate fertilizers. A standard jar test is recommended before tank mixing.

3-0-0
GUARANTEED ANALYSIS
Total Nitrogen (N) 3.0%
3.0% Nitrate Nitrogen
Calcium (Ca) 8.0%
Derived from: calcium gluconate and calcium nitrate.

CellMate® Foliar Plus Mo

CALCIUM, BORON, & MOLYBDENUM BIONUTRITION ≈ pH 3.5

Delivers highly available calcium, boron, and molybdenum for maximum leaf penetration and mobility. Supports pollen tube elongation, pollination success, and cell wall strength for increased fruit set, improved quality, and natural disease resistance. The addition of molybdenum in this formulation increases nitrogen utilization and the conversion of nitrates into proteins.

CROP TYPE	APPLICATION RATE	TIMING
All Crops	**1-4 quarts/acre**	Apply anytime during the growing season; use the higher rate with spray volume greater than 50 gallons per acre; repeat as needed.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with sulfate fertilizers. A standard jar test is recommended before tank mixing.

3-0-0

GUARANTEED ANALYSIS

Total Nitrogen (N) 3.0%
3.0% Nitrate Nitrogen
Calcium (Ca) 8.0%
Boron (B) 0.5%
Molybdenum (Mo) 0.2%
Derived from: calcium gluconate, calcium nitrate, boric acid, and sodium molybdate.

ChloroDrive Foliar®

MULTI-MICRONUTRIENT ≈ pH 3.0

This balanced blend provides three highly mobile nutrients essential for healthy leaf and canopy development. Zinc, manganese, and magnesium are crucial to the formation and density of chlorophyll and the process of photosynthesis, which drive carbohydrate production and eventual yield.

CROP TYPE	APPLICATION RATE	TIMING
All Other Crops	**1-6 quarts/acre**	Apply anytime during the growing season; Repeated applications may be required. Wait at least 10 to 14 days before reapplying. Higher rates should be used for orchards and vineyards. Use the higher rate with spray volume greater than 50 gallons per acre.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

GUARANTEED ANALYSIS

Magnesium (Mg) 2.0%
Sulfur (S) 4.0%
Manganese (Mn) 2.0%
Zinc (Zn) 2.0%
Derived from: magnesium sulfate, manganese sulfate, and zinc sulfate.

CopCAN™ Soil

CALCIUM NITRATE COMPATIBLE ≤ pH 2.0

Delivers the performance and technology of our top-performing copper product, Copron Soil, and optimizes it to mix with calcium nitrate fertilizers, including CAN-17 and CN-9, for outstanding tank compatibility.

CROP TYPE	APPLICATION RATE	TIMING
All Other Crops	**1-4 quarts/acre**	Apply as needed throughout the season.

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. A standard jar test is recommended before tank mixing.

1-0-0

GUARANTEED ANALYSIS

Total Nitrogen (N) 1.0%
1.0% Nitrate Nitrogen
Copper (Cu) 5.0%
Derived from: copper gluconate and copper nitrate.

Copron® Foliar

COPPER BIONUTRITION ≤ pH 2.0

Provides highly available and mobile copper for increased foliar uptake and mobility in the plant. Essential for the production of lignins (woody fibers) for improved bark and stalk health. Supports photosynthesis, respiration, and protein synthesis.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	**0.5-3.0 pints/acre**	Apply in spring or early summer. Use the higher rate with spray volume greater than 50 gallons per acre; repeat as needed.
All Other Crops	**0.5-2.0 pints/acre**	Apply any time during growing season; repeat as needed.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. DO NOT mix with crop oil concentrates without first consulting your local agronomist. A standard jar test is recommended before tank mixing.

GUARANTEED ANALYSIS

Sulfur (S) 2.5%
Copper (Cu) 5.0%
Derived from: copper sulfate.

Copron® Soil

COPPER BIONUTRITION ≤ pH 2.0

Delivers highly mobile copper that is not subject to soil tie-ups for superior uptake. Important for production of lignin (woody fibers) for improved bark and stalk health. Essential for antioxidant production and stress mitigation. Also supports photosynthesis, respiration, and protein synthesis.

CROP TYPE	APPLICATION RATE	TIMING
All Crops	**1-8 quarts/acre**	Apply any time during growing season; repeat as needed.

DO NOT mix in concentrated form with any other tank additive without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

GUARANTEED ANALYSIS

Sulfur (S) 2.5%
Copper (Cu) 5.0%
Derived from: copper sulfate.

DriveKP™

DIPOTASSIUM PHOSPHATE BIONUTRITION ≈ pH 9.5

A premium dipotassium phosphate (DKP) product delivering high analysis potassium and phosphorus. DriveKP is designed to provide highly mobile, plant-available potassium and phosphorus during periods of increased demand such as early season cold soils and hot weather when there is a drop in available soil moisture. Research shows that DKP results in healthier plants that are better able to resist diseases like powdery mildew and hull infection.

CROP TYPE	APPLICATION RATE	TIMING
Foliar	**1-6 quarts/acre**	Apply any time during the season; repeat as needed.
Soil	**1-5 gallons/acre**	

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with calcium or micronutrient fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

0-19-26

GUARANTEED ANALYSIS

Available Phosphate (P_2O_5) 19.0%
Soluble Potash (K_2O) 26.0%
Molybdenum (Mo) 0.05%
Derived from: dipotassium phosphate and sodium molybdate.

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FlexCAN™ Soil

CALCIUM NITRATE COMPATIBLE ≤ pH 2.0

Premium micronutrient blend of zinc, iron, and manganese that together deliver highly efficient nutrients that are optimized to mix with calcium nitrate fertilizers, including CAN-17 and CN-9, for outstanding tank compatibility.

CROP TYPE	APPLICATION RATE	TIMING
All Crops	**1-8 quarts/acre**	Apply as needed throughout the season.

1-0-0
GUARANTEED ANALYSIS
Total Nitrogen (N)..... 1.0%
1.0% Nitrate Nitrogen
Iron (Fe)..... 1.0%
Manganese (Mn) 1.0%
Zinc (Zn) 3.0%
Derived from: nitric acid, iron gluconate, manganese gluconate, and zinc gluconate.

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. For best results, do not store combined with calcium nitrate or comparable products more than 72 hours when agitation is not available. A standard jar test is recommended before tank mixing.

FlexForce™ Foliar

MULTI-MICRONUTRIENT ≤ pH 2.0

This balanced blend of nutrients is formulated to ensure rapid uptake through plant tissues to strengthen vegetative growth and canopy health. The zinc, iron, and manganese work together to maximize the photosynthetic capacity of the crop and can be applied anytime during the growing season for increased carbohydrate production.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	**2-4 quarts/acre**	Apply during the stages of canopy building, fruit/nut fill, and bud development.
Berry Crops	**2-4 quarts/acre**	Apply during early leaf growth and immediately following each harvest.
Row Crops	**1-2 quarts/acre**	Apply any time after 4th leaf.
All Other Crops	**1-4 quarts/acre**	Apply any time during growing season; Repeated applications may be beneficial

1-0-0
GUARANTEED ANALYSIS
Nitrogen (N) 1.0%
1.0% Urea Nitrogen
Soluble Iron (Fe) 2.0%
Soluble Manganese (Mn) 1.0%
Soluble Zinc (Zn)..... 3.0%
Derived from: low biuret urea, iron sulfate, manganese sulfate and zinc sulfate.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers.

FlexForce™ Soil

MULTI-MICRONUTRIENT ≤ pH 2.0

Delivers a balanced blend of chelated zinc, iron, and manganese that can be applied anytime during the growing season to strengthen vegetative growth and canopy health. Multiple organic acids surround and protect the nutrients from soil tie-ups. The unique properties of this blend allow for extremely rapid uptake by plant roots and translocation to growing points.

CROP TYPE	APPLICATION RATE	TIMING
All Other Crops	**1-8 quarts/acre**	Apply any time during growing season.

1-0-0
GUARANTEED ANALYSIS
Nitrogen (N) 1.0%
1.0% Urea Nitrogen
Soluble Iron (Fe) 2.0%
Soluble Manganese (Mn) 1.0%
Soluble Zinc (Zn)..... 3.0%
Derived from: Urea, iron sulfate, manganese sulfate, and zinc sulfate.

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

GreenSurge™ Foliar

MAGNESIUM BIONUTRITION ≈ pH 6.0

Delivers highly mobile magnesium that is efficiently absorbed by the leaves and distributed to the plant for a long-term green-up. These highly available nutrients are essential for chlorophyll construction, increased chlorophyll density, and optimum photosynthesis. Also, improves enzyme functions and protein synthesis.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	**1-6 quarts/acre**	Apply in spring. Always use the higher rate with spray volume greater than 50 gallons per acre. Repeat as needed.
All Other Crops	**1-4 quarts/acre**	Apply any time during growing season; repeat as needed.

GUARANTEED ANALYSIS
Magnesium (Mg) 4.0%
Sulfur (S) 5.0%
Derived from: magnesium sulfate.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

K-Surge®

POTASSIUM BIONUTRITION ≈ pH 7.5-8.5

Provides complementary source of readily available potassium during periods of increased demand, namely cell elongation, fruit sizing and ripening, heat, and drought stress. Low salt index eliminates concern of phytotoxicity. Also contains boron and molybdenum to support the utilization of potassium.

CROP TYPE	APPLICATION RATE	TIMING
Foliar	**1-6 quarts/acre**	Apply any time during the season; repeat as needed.
Soil	**1-5 gallons/acre**	

0-0-20
GUARANTEED ANALYSIS
Soluble Potash (K_2O) 20.0%
Boron (B) 0.05%
Molybdenum(Mo)..... 0.03%
Derived from: potassium acetate, boric acid, sodium molybdate.

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. A standard jar test is recommended before tank mixing.

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ManCAN™ Soil

CALCIUM NITRATE COMPATIBLE ≤ pH 2.0

Delivers the performance and technology of our top-performing manganese product, Manron Soil, and optimizes it to mix with calcium nitrate fertilizers, including CAN-17 and CN-9, for outstanding tank compatibility.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	1-8 quarts/acre	Apply any time during growing season; repeat as needed.
All Other Crops	1-4 quarts/acre	

1-0-0
GUARANTEED ANALYSIS
Nitrogen (N) 1.0%
Manganese (Mn) 5.0%
Derived from: nitric acid and manganese gluconate.

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. A standard jar test is recommended before tank mixing.

Manron® Foliar

MANGANESE BIONUTRITION ≈ pH 2.5

Delivers highly available and efficient manganese that is easily absorbed by the plant. Essential for photosynthesis, antioxidant production, and enzyme production. It is critical for natural disease defense. Counteracts the tie-up of manganese due to glyphosate applications.

CROP TYPE	APPLICATION RATE	TIMING
All Other Crops	1-6 pints/acre	Apply any time during the growing season; repeat as needed. Do NOT apply higher rates with crop oil concentrates. Use the higher rate with spray volume greater than 50 gallons per acre.

GUARANTEED ANALYSIS
Sulfur (S) 3.0%
Manganese (Mn) 5.0%
Derived from: manganese sulfate.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

Manron® Soil

MANGANESE BIONUTRITION ≈ pH 2.5

Delivers highly mobile and available manganese that is easily taken up by the plant and not subject to soil tie-ups. Increased nutrient utilization enhances process of photosynthesis, chloroplast formation, and enzyme function. Especially critical for natural disease defense and antioxidant production. Counteracts the tie-up of manganese due to glyphosate applications.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	1-8 quarts/acre	Apply any time during growing season; repeat as needed.
All Other Crops	1-4 quarts/acre	

GUARANTEED ANALYSIS
Sulfur (S) 3.0%
Manganese (Mn) 5.0%
Derived from: manganese sulfate.

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

MicroBlend Foliar™ Zn-Mn-B

MULTI-MICRONUTRIENT ≈ pH 2.5

Delivers a balanced blend of three essential nutrients for superior uptake and mobility. Supports pollination success, plant growth rates, larger leaf size, and longer internodes. Supports chloroplast formation and photosynthesis. Boron is essential for fruit sizing and quality.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	1-4 quarts/acre	Apply at any growth stage. DO NOT apply higher rates with crop oil concentrates. Use the higher label rates with spray volumes of 50 gal/acre or greater. Repeat as needed.
Field, Row, Vegetable & Fruit Crops	1-2 quarts/acre	Apply when there is sufficient leaf area to absorb the spray. Repeat as needed.
Row Sugar Beets Crops	2-4 quarts/acre	Apply at any time after 4th leaf. Repeat as needed.

GUARANTEED ANALYSIS
Sulfur (S) 3.0%
Boron (B) 0.5%
Manganese (Mn) 3.0%
Zinc (Zn) 3.0%
Derived from: boric acid, manganese sulfate, and zinc sulfate.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

MicroBlend Foliar™ Zn-Mn-Cu

MULTI-MICRONUTRIENT ≤ pH 2.0

Provides a balanced blend of three essential nutrients for superior uptake and mobility. Supports pollination success, plant growth rates, larger leaf size and longer internodes. Supports chloroplast formation and photosynthesis. Copper is essential for root and trunk health after harvest.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	1-4 quarts/acre	Apply in spring at any time after leaf out. DO NOT apply these higher rates with crop oil concentrates. For ground applications, use a final spray volume of 10-200 gal/acre. For aerial applications, use a final spray volume of 3-20 gal/acre. Use the higher label rates with spray volumes of 50 gal/acre or greater. Repeat as needed.
All Other Crops	1-4 quarts/acre	Apply any time during the growing season. Repeat as needed.

GUARANTEED ANALYSIS
Sulfur (S) 3.0%
Copper (Cu) 1.0%
Manganese (Mn) 3.0%
Zinc (Zn) 3.0%
Derived from: zinc sulfate, manganese sulfate, and copper sulfate.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. DO NOT mix with crop oil concentrates without first consulting your local agronomist. A standard jar test is recommended before tank mixing.

Products described in this guide may be registered by FBSciences, Inc., or Valent BioSciences LLC; refer to product labels for more information. This is not the complete label; see label for complete Directions for Use. Always read and follow label instructions. For the full product warranty, terms and conditions, please visit www.warrantydetails.net or contact us at 1-877-696-4204. Tank mix compatibility is impacted by water quality. When mixing products, always establish compatibility using a standard jar test prior to tank mixing. Not all products listed are registered and available in all 50 states.

MicroBlend Soil™ Zn-Mn-C

MULTI-MICRONUTRIENT ≤ pH 2.0

Delivers a balanced blend of three essential nutrients for superior uptake from the soil and increased mobility within the plant. Improves pollination success, plant growth rates, larger leaf size, and longer internodes. Supports chloroplast formation and is essential for photosynthesis. Copper is essential for lignin production to improve root and trunk recovery after harvest.

CROP TYPE	APPLICATION RATE	TIMING
All Crops	**1-8 quarts/acre**	Apply any time during growing season; repeat as needed.

GUARANTEED ANALYSIS

Sulfur (S) 3.0%
Copper (Cu) 1.0%
Manganese (Mn) 3.0%
Zinc (Zn) 3.0%
Derived from: zinc sulfate, manganese sulfate, and copper sulfate.

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. A standard jar test is recommended before tank mixing.

Phosron® Foliar

PHOSPHATE & MOLYBDENUM BIONUTRITION ≈ pH 6.0-8.0

Delivers highly available phosphate with molybdenum to increase energy conversion for early season growth. Improves cell division and ATP production. Supports cell membrane function for improved nutrient absorption as well as nutrient movement to support early plant development. Also enhances nitrogen use efficiency.

CROP TYPE	APPLICATION RATE	TIMING
All Crops	**2-5 quarts/acre**	Apply at any growth stage. When using spray volumes of 50 gallons per acre or greater, use the higher labeled spray rates. Repeat every two to four weeks during periods of high phosphorus demand by the crop.

7-21-3
GUARANTEED ANALYSIS

Total Nitrogen (N).....7.0%
6.5% Ammoniacal Nitrogen
0.5% Urea Nitrogen
Available Phosphate (P_2O_5).....21.0%
Soluble Potash (K_2O)..... 3.0%
Molybdenum (Mo)..... 0.2%
Derived from: ammonium hydroxide, low biuret urea, phosphoric acid, potassium hydroxide, and sodium molybdate.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with calcium or micronutrient fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

Phosron® Soil

PHOSPHATE, MOLYBDENUM, & ZINC BIONUTRITION ≈ pH 6.0-8.0

Premium phosphate product complexed with humic acids that keeps phosphorus soluble and available even in adverse conditions ie: high pH, calcareous soils, and poor water quality so plants can take up nutrients and store energy at key times. Crystal disruption technology eliminates irrigation scaling and plugging.

CROP TYPE	APPLICATION RATE	TIMING
All Crops	**5-20 gallons/acre**	Apply any time during the growing season; repeat as needed.

7-21-0
GUARANTEED ANALYSIS

Total Nitrogen (N) 7.0%
7.0% Ammoniacal Nitrogen
0.5% Urea Nitrogen
Available Phosphate (P_2O_5) 21.0%
Molybdenum (Mo) 0.001%
Zinc (Zn) 0.2%
Derived from: Ammonium hydroxide, Phosphoric Acid, Ammonium polyphosphate, zinc gluconate, and sodium molybdate.

COMPATIBILITY* When mixing with other material such as calcium or other micronutrient fertilizers, always establish compatibility using the standard quart jar method prior to tank mixing. When blending with micronutrients additional water and agitation may be required. A citric acid buffering agent can also be used to improve compatibility.

PhotoGreen® Foliar

IRON & MANGANESE BIONUTRITION ≤ pH 2.0

Delivers highly available iron and manganese for maximum foliar uptake to support photosynthesis and chlorophyll production. Provides immediate correction of chlorosis and other micronutrient related deficiencies resulting in a quick and long-lasting green-up.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	**1-6 quarts/acre**	Apply any time during growing season; repeat as needed. Use the higher rate with spray volume greater than 50 gallons per acre.
All Other Crops	**1-4 quarts/acre**	Apply any time during growing season; repeat as needed.

GUARANTEED ANALYSIS

Sulfur (S) 3.0%
Iron (Fe) 5.0%
Manganese (Mn) 1.0%
Derived from: ferrous sulfate and manganese sulfate..

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

PhotoGreen® Soil

IRON & MANGANESE BIONUTRITION ≈ pH 1.5

Delivers highly available iron and manganese that is not subject to soil tie-ups. These nutrients are essential for chlorophyll production and photosynthesis, providing immediate and long-lasting correction of chlorosis and other iron and manganese related deficiencies for a quick and long-lasting green-up.

CROP TYPE	APPLICATION RATE	TIMING
Orchards & Vineyards	**1-6 quarts/acre**	Apply any time during the growing season; repeat as needed.
All Other Crops	**1-4 quarts/acre**	

GUARANTEED ANALYSIS

Sulfur (S) 3.0%
Iron (Fe) 5.0%
Manganese (Mn) 1.0%
Derived from: ferrous sulfate and manganese sulfate.

DO NOT mix in concentrated form with any other tank additive without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

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ADVANCED SLOW RELEASE NITROGEN

Our premium nitrogen product is designed to slowly release nitrogen over a period of 4-12 weeks. This formulation slows the evaporation of the spray which allows time for the nutrients to be absorbed by the plant over an extended period of time.

BIONUTRITION SEED TREATMENTS

Our bionutrient enhanced seed treatment products significantly increase the germination rate under high-stress conditions, including cold, frost, heat, salt, drought, wet soils, and phytotoxicity from fertilizers.

SloN Plus™

NITROGEN (SLOW RELEASE) BIONUTRITION ≈ pH 9.0-11.0

Premium blend of quick and slow release nitrogen. Approximately 40% is immediately available to the plant, and the other 60% is released over the coming weeks, with all nitrogen released in 4-6 weeks depending on environmental conditions.

CROP TYPE	APPLICATION RATE	TIMING
Cotton	**1-2 quarts/acre**	Apply early in the season.
	2-3 gallons/acre	Apply mid-season.
Grapes	**1-2 gallons/acre**	Apply any time during growing season.
Tree Crops	**1-1.5 gallons/acre**	Apply at pre pink bud to early bloom.
	2-3 gallons/acre	Apply 30 days later repeat as necessary.
	3-5 gallons/acre	Apply at post-harvest.
Cereals	**2-3 gallons/acre**	Apply at flag leaf.
Row Crops	**1-3 gallons/acre**	Apply when enough leaf is available to absorb spray, repeat every 30 days as necessary.
Corn	**2-3 gallons/acre**	Apply after pollination.

28-0-0

GUARANTEED ANALYSIS

Total Nitrogen (N)..... 28.0%
11.5% Urea Nitrogen
16.5% Other water-soluble Nitrogen*
Derived from: urea and methylene ureas.
*16.5% Slowly available Nitrogen from methylene ureas.

COMPATIBILITY* SloN Plus is compatible with most insecticides, fungicides, and fertilizers. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. DO NOT mix with other products in concentrated form without first adding water. A standard jar test is recommended before tank mixing.

SuperSede® Small Grains

SEED TREATMENT ≈ pH 3.0

Crop-specific bionutrient seed treatment designed specifically for use on small grains. SuperSede Small Grains delivers improved germination and seedling vigor, increased uniformity, a more robust root system, and a higher stand count.

DIRECTIONS FOR USE

Apply SuperSede Small Grains at the rate of 2 oz per 100 lbs. of seed. SuperSede Small Grains is formulated as a ready to apply material for wheat, barley, oats, rye, triticale, and other small grains. Apply SuperSede Small Grains at the rate of 3 oz per 100 lbs. of seed for grass seed.

GUARANTEED ANALYSIS

Combined Sulfur (S)..... 1.0%
Soluble Manganese (Mn)..... 0.9%
Soluble Zinc (Zn)..... 2.25%
Derived from: manganese sulfate and zinc sulfate.

A jar test is recommended before use. SuperSede Small Grains should not be tank mixed with a fungicide or insecticide seed treatment that contains a polymer coating. In cases like this the fungicide or insecticide product should be applied first and the SuperSede Small Grains applied over the top of the polymer containing fungicide or insecticide. DO NOT use treated seed for food, feed, or oil. Shake well before use.

SuperSede® Soybean

SEED TREATMENT ≈ pH 8.0-8.5

Crop-specific bionutrient seed treatment designed specifically for use on soybeans and other legumes to help crops overcome early season abiotic stress for improved root and nodulation development, improved germination and seedling vigor, increased uniformity, and a higher stand count.

DIRECTIONS FOR USE

Apply SuperSede Soybean at the rate of 2 oz per 100 lbs. of seed. SuperSede SuperSede Soybean is formulated as a ready-to-apply material for soybeans and other legumes including but not limited to peanuts, alfalfa, cowpeas, dry beans, garbanzo beans (chickpea), peas, lentils, pigeon peas.

GUARANTEED ANALYSIS

Boron (B)..... 0.2%
Cobalt (Co)..... 0.05%
Molybdenum (Mo)..... 5.0%
Zinc (Zn)..... 0.5%
Derived from: sodium molybdate, cobalt nitrate, boric acid, and zinc sulfate.

SuperSede Soybean is compatible with most fungicides and insecticide seed treatments. A standard jar test is recommended before use. DO NOT use treated seed for food, feed, or oil. Shake well before use.

ZiCAN Soil®

CALCIUM NITRATE COMPATIBLE ≤ pH 2.0

Delivers the performance and technology of our top-performing zinc and manganese product, Zicron Soil, and optimizes it to mix with calcium nitrate fertilizers, including CAN-17 and CN-9, for outstanding tank compatibility.

CROP TYPE	APPLICATION RATE	TIMING
All Crops	**1-8 quarts/acre**	Apply any time during the growing season; repeat as needed.

Can be mixed with CAN-17 or CN-9 at a ratio of 0.25 to 1.0 Gallons per 10 Gallons of liquid calcium fertilizer. DO NOT mix in concentrated form with any other tank additive without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. A standard jar test is recommended before tank mixing.

2-0-0
GUARANTEED ANALYSIS

Total Nitrogen (N)..... 2.0%
0.5% Ammoniacal Nitrogen
1.5% Nitrate Nitrogen
Manganese (Mn) 1.0%
Zinc (Zn) 6.0%

Derived from: Ammonium nitrate, Nitric acid, zinc gluconate, and ..... manganese gluconate.

Zicron® Foliar

ZINC & MANGANESE BIONUTRITION ≈ pH 3.0

Delivers phloem mobile zinc and manganese for superior foliar uptake and movement. Essential for photosynthesis, supports chloroplast production, leaf size, and greater bud fruitfulness. Improves leaf size, internode length, and chlorophyll density. Needed to manage abiotic stress and antioxidant production.

CROP TYPE	APPLICATION RATE	TIMING
All Crops	**1-6 pints/acre**	Apply any time during the growing season; repeat as needed. Use the higher rate with spray volume greater than 50 gallons per acre.

GUARANTEED ANALYSIS

Sulfur (S) 3.0%
Manganese (Mn) 1.0%
Zinc (Zn) 6.0%

Derived from: manganese sulfate and zinc sulfate monohydrate.

Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

Zicron® Soil

ZINC & MANGANESE BIONUTRITION ≈ pH 3.0

Delivers highly mobile zinc that is strongly protected with natural complexing agents to ensure easy uptake by the roots and increased mobility in the plant. Supports chlorophyll production, leaf size, internode length, and greater bud fruitfulness.

CROP TYPE	APPLICATION RATE	TIMING
All Crops	**1-8 quarts/acre**	Apply any time during the growing season; repeat as needed.

GUARANTEED ANALYSIS

Sulfur (S) 3.0%
Manganese (Mn) 1.0%
Zinc (Zn) 6.0%

Derived from: manganese sulfate and zinc sulfate monohydrate.

DO NOT mix in concentrated form with any other tank additive without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. When mixing with high phosphate fertilizers, add a citric acid buffer until the pH is 4.5 to 5.0 to improve compatibility and uptake. Ensure agitation is available when mixing with calcium fertilizers. A standard jar test is recommended before tank mixing.

FBS Organics® Zicron

ORGANIC ZINC & MANGANESE BIONUTRITION ≤ pH 2.0

Premium zinc and manganese product that is OMRI, OIM, and WSDA listed for use in organic production that is complexed with natural chelates and other formulation enhancers that both protect the nutrients in the soil and help them enter the vegetative tissue via foliar application. FBS Organics Zicron is designed to optimize photosynthetic output in all crops. When combining zinc with manganese, these nutrients increase leaf size, internode spacing, and carbohydrate production.

CROP TYPE	APPLICATION RATE	TIMING
Foliar	**1-6 pints/acre**	Apply any time during the growing season; repeat as needed.
Soil	**1-8 quarts/acre**	

DO NOT mix with other products in concentrated form without first adding water. Recommended mixing sequence: water, adjuvants, pesticides, Valent BioSciences nutrient products, other fertilizers, balance of water while agitating. A standard jar test is recommended before tank mixing.

GUARANTEED ANALYSIS

Sulfur (S) 3.0%
Manganese (Mn) 1.0%
Zinc (Zn) 6.0%

Derived from: manganese sulfate complexed with gluconic acids, zinc sulfate complexed with gluconic acids and lignosulfonate.

FBS Harmony™

COMPATIBILITY AGENT ≤ pH 2.0

Citric acid-based acidifier/buffering agent specifically designed to lower the pH of tank mixes to achieve an ideal compatibility among nutrients and crop protection chemicals.

CROP TYPE	RATES & TIMING
Chemigation	Use 0.5-2.0 quarts per 100 gallons of finished solution.
Tank Buffer Mix	Use 1-2 quarts per 100 gallons of finished spray solution. To adjust the pH of spray solution to 4.5-5.5, add 4-64 oz of FBS Harmony per 100 gallons of spray solution. When using FBSciences' Phosron™ Foliar (7-21-3) and other FBSciences foliar products the ideal final pH of the tank mix is between 4.5 and 5.0, which often can be achieved by adding 1 quart of FBS Harmony for every 2 quarts of Phosron Foliar.

FBS Harmony is compatible with a wide range of nutrient and crop protection materials applied as a tank mix solution. Always conduct a standard jar test before tank mixing other materials. Specific use rates will vary with conditions such as total water volume, pH of other materials added, or amount of bicarbonates or carbonates in the water. In most cases, the ideal pH for compatibility and ideal nutrient uptake is between a pH of 4.5 and 5.5. Use enough FBS Harmony to adjust the final tank mix pH to the desired level. Monitor and check the pH before and after introduction of FBS Harmony to ensure desired pH adjustment. A pH that is higher than 8.0 will need increasingly more FBS Harmony to achieve desired pH levels. Always read the labels of each crop protection product in the tank mix. Make sure that the desired target pH is also in the ideal pH range of all crop protection products.

FBS Marshal™

COMPATIBILITY AGENT ≤ pH 3.5

Compatibility agent for direct addition to liquid fertilizers. Designed for formulators to easily use in problematic blends. Improves compatibility and stability of most fertilizer tank mixes.

DIRECTIONS FOR USE

Standard rate is 2% of the total tank mix. However, ranges may vary from 0.5%-10% rates of the total tank mix. A jar test is recommended to determine the specific rate determination.

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VALENT BIOSCIENCES FOLIAR APPLIED PRODUCTS

Rates Per Acre	BenePhite Expand 4 qts	BoronBoost Foliar 3 qts	BounceBack Foliar 4 qts	CellMate Foliar 4 qts	ChloroDrive Foliar 4 qts	Copron Foliar 3 qts	DriveKP 2 qts	FlexForce Foliar 4 qts	GreenSurge Foliar 4 qts	K-Surge 4 qts	Manron Foliar 4 qts	MicroBlend Zn-Mn-B 4 qts	MicroBlend Zn-Mn-Cu 4 qts	Phosron Foliar 4 qts	PhotoGreen Foliar 4 qts	SloN Plus 4 qts	Transit Foliar 15 oz	Zicron Foliar 4 qts
BenePhite Expand 4 qts	–																	
BoronBoost Foliar 3 qts		–																
BounceBack Foliar 4 qts			–															
CellMate Foliar 4 qts				–														
ChloroDrive Foliar 4 qts					–													
Copron Foliar 3 qts						–												
DriveKP 2 qts							–											
FlexForce Foliar 4 qts								–										
GreenSurge Foliar 4 qts									–									
K-Surge 4 qts										–								
Manron Foliar 4 qts											–							
MicroBlend Zn-Mn-B 4 qts												–						
MicroBlend Zn-Mn-Cu 4 qts													–					
Phosron Foliar 4 qts														–				
PhotoGreen Foliar 4 qts															–			
SloN Plus 4 qts																–		
Transit Foliar 15 oz																	–	
Zicron Foliar 4 qts																		–

Gallons of Water

50

LEGEND

Compatible	Compatible	Compatible	Not Compatible
Green	Blue	Yellow	Red
	FBS Harmony Needed	Opaque Through 100 Mesh Screen	

View Chart & Mixing Demonstrations Online

For information about mixing orders & best practices please see next page.

FOLIAR APPLIED PRODUCTS MIXED WITH OTHER FERTILIZERS

Rates Per Acre	BoronBoost Foliar 3 qts	BounceBack Foliar 4 qts	CellMate Foliar 4 qts	ChloroDrive Foliar 4 qts	Copron Foliar 3 qts	DriveKP 2 qts	FlexForce Foliar 4 qts	GreenSurge Foliar 4 qts	K-Surge 4 qts	Manron Foliar 4 qts	MicroBlend Zn-Mn-B 4 qts	MicroBlend Zn-Mn-Cu 4 qts	Phosron Foliar 4 qts	PhotoGreen Foliar 4 qts	SloN Plus 4 qts	Transit Foliar 15 oz	Zicron Foliar 4 qts
GALLONS OF WATER	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100	5 50 100
Urea 10 LBS																		
Potassium Phosphites (0-28-25) 2 QUARTS																		
3-18-18 2 GALLONS																		
Potassium Nitrate 15 LBS																		
Potassium Sulfate 2 GALLONS OF 0-0-6																		
Most Zinc Foliar Products 2 QUARTS																		
SeaPlant Extracts 2 QUARTS																		
Calcium Foliar Products 2 QUARTS																		
Foliar Boron Products 2 QUARTS																		
NPK Blends	JAR TEST REQUIRED																	

Gallons of Water

5 50 100

LEGEND

Compatible	Compatible	Compatible	Not Compatible
Green	Blue	Yellow	Red
	FBS Harmony Needed	Opaque Through 100 Mesh Screen	

View Chart & Mixing Demonstrations Online

For information about mixing orders & best practices please see next page.

VALENT BIOSCIENCES SOIL APPLIED PRODUCTS

	BoronBoost Soil	BorCAN Soil	Calron Soil	CopCAN Soil	Copron Soil	Drip Transit	DriveKP	FlexCAN Soil	FlexForce Soil	K-Surge	Manron Soil	ManCAN Soil	MicroBlend Zn-Mn-Cu	Phosron Soil*	PhotoGreen Soil	SloN Plus	Transit Soil	ZiCAN Soil	Zicron Soil
BoronBoost Soil	–																		
BorCAN Soil		–																	
Calron Soil			–																
CopCAN Soil				–															
Copron Soil					–														
Drip Transit						–													
DriveKP							–												
FlexCAN Soil								–											
FlexForce Soil									–										
K-Surge										–									
Manron Soil											–								
ManCAN Soil												–							
MicroBlend Zn-Mn-Cu													–						
Phosron Soil*														–					
PhotoGreen Soil															–				
SloN Plus																–			
Transit Soil																	–		
ZiCAN Soil																		–	
Zicron Soil																			–

View Chart & Mixing Demonstrations Online

Ratio of Product

*unless otherwise noted

1:1

LEGEND

Compatible	Compatible	Compatible	Jar Test Required
Green	Blue	Yellow	Red
	Needs Further Dilution	Opaque Through 80 Mesh Screen	

Each mix done at a 1:1 ratio unless otherwise noted.

*Phosron Soil, was mixed at a 10:1 ratio.

This chart is representative of a worst case scenario, under other ratios or with the addition of a macro nutrient the mix could become compatible. Jar test advised.

For information about mixing orders & best practices please see next page.

SOIL APPLIED PRODUCTS MIXED WITH OTHER FERTILIZERS

	BoronBoost Soil	BorCAN Soil	Calron Soil	Copron Soil	CopCAN Soil	Drip Transit	DriveKP	FlexCAN Soil	FlexForce Soil	K-Surge	Manron Soil	ManCAN Soil	MicroBlend Zn-Mn-Cu	Phosron Soil	Phosron Plus 1% Zn	PhotoCAN Soil	PhotoGreen Soil	SloN Plus	Transit Soil	ZiCAN Soil	Zicron Soil
	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30	10 20 30
UAN-32 (32-0-0)																					
AN-20 (20-0-0)																					
Ammonium Thiosulfate (ATS)																					
CAN-17																					
CN-9																					
10-34-0																				*	*
8-8-8																					
Potassium Thiosulfate (KTS)																					
Calcium Thiosulfate (CaTS)																					
6% Liquid Humic Acids from Leonardite																					

*Please allow at least 15 minutes after thorough agitation for the mixture to become compatible.

View Chart & Mixing Demonstrations Online

Ratio of Fertilizer to FBSciences Product

10:1 20:1 30:1

LEGEND

Compatible	Compatible	Compatible	Not Compatible
Green	Blue	Yellow	Red
	Needs Further Dilution	Opaque Through 80 Mesh Screen	

For information about mixing orders & best practices please see next page.

BIOSTIMULANT AND RELATED PRODUCTS MIXED WITH SOIL APPLIED FERTILIZERS

	UAN-32 (32-0-0)			AN-20 (20-0-0)			Ammonium Thiosulfate (ATS)			CAN-17			CN-9			10-34-0			8-8-8			Potassium Thiosulfate (KTS)			Calcium Thiosulfate (CaTS)			6% Liquid Humic Acids from Leonardite		
	Soil Applied																													
	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30	10	20	30
FBS Humate Plus*																														
Water Dilution Ratio	1:1			1:1			4:1			4:1			4:1			4:1			1:1			1:1			4:1			1:1		
Ocean Swell 2 quarts																														
Transit Soil																														

*FBS Humate Plus is a concentrated, thick viscous 19% Humic Acids product that needs to be diluted with water prior to adding to the final tank mix. 1:1 Ratio unless otherwise noted.

	BoronBoost Soil	BorCAN Soil	Calron Soil	CopCAN Soil	Copron Soil	Drip Transit	DriveKP	FlexCAN Soil	FlexForce Soil	K-Surge	Manron Soil	ManCAN Soil	MicroBlend Zn-Mn-Cu	Phosron Soil**	PhotoGreen Soil	SloN Plus	Transit Soil	ZiCAN Soil	Zicron Soil
FBS Humate Plus 1:1 Dilution*																			
FBS Humate Plus 4:1 Dilution*																			

* Always Dilute Humate Plus prior to mixing
** 10:1 Phosron Soil to Soil Product

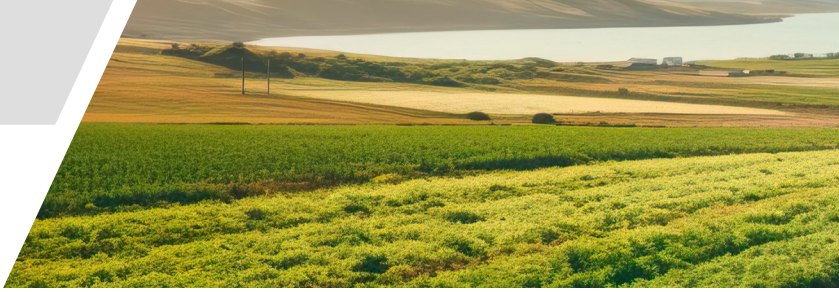
View Chart & Mixing Demonstrations Online

Ratio of Fertilizer to Valent BioSciences' Product
Soil Applied
10:1 20:1 30:1

Water Dilution Ratio
FBS Humate Plus
1:1 2:1 3:1 4:1

LEGEND
Compatible — Green
Compatible — Yellow
Opaque Through 80 Mesh Screen for Soil
Not Compatible — Red

For information about mixing orders & best practices please see next page.



VALENT BIOSCIENCES®

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