

SUSTÅNE®

NATURAL FERTILIZERS & SOIL BUILDERS



NURSERY, GREENHOUSE, AND LANDSCAPE

PRODUCTS AND USAGE GUIDE



GREENHOUSE, LANDSCAPE AND NURSERY

Suståne's EPA permitted composting facility.



SUSTÅNE PRODUCTS ARE SUSTAINABLY SOURCED, PERFORMANCE-DRIVEN, AND ENVIRONMENTALLY FRIENDLY.

Supplying the highest quality, biologically active fertilizers, and soil amendments, Suståne drives optimal plant performance and improved return on investment. Built on a stable, aerobic compost base, low salt-index plant nutrients delivered through Suståne's beneficial biology are safe, simple, and effective for growing high quality plants in variable soils, container media and all environments.

SUSTÅNE PRODUCTS ARE PROFESSIONAL GRADE

Suståne organic and natural base fertilizers are used by professional growers in over 60 countries around the globe. Suståne is backed with more than 30 years of independent applied research across a range of diverse crops, cropping systems, and climates. Research, customer support and dedication to the grower, is unmatched by any other organic fertilizer manufacturer. These principles are the foundation of Suståne the company and Suståne technology.

SUSTÅNE PRODUCTS ARE BIOLOGICALLY RICH AND MICROBIALLY DIVERSE



Healthy plants and productive soils require much more than N, P, K, and water. It is the biology of any media that promotes optimal plant growth and resistance to pests and disease. Suståne delivers biology that other fertilizers cannot. Suståne's fertilizer base starts with 26 weeks of aerobic composting of agricultural residues. The finished compost creates a biologically stable, yet microbiologically diverse foundation upon which different formulations are built.

SUSTÅNE NATURAL FERTILIZERS & SOIL BUILDERS

SUSTÅNE PRODUCTS ARE SAFE, SIMPLE AND EFFECTIVE

Suståne fertilizers are lab-verified safe for import clearance worldwide. Uniform granulation minimizes dust and allows for consistent, uniform application. All Suståne greenhouse, landscape, and nursery products are built on top of Suståne's humus-rich, slow-release plant nutrition, reducing plant "burn" or nutrient losses to the surrounding environment.

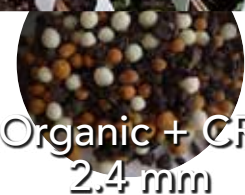


Typical 2 mm Suståne granule shown at 25x magnification







ALL-ORGANIC AND NATURAL BASE + CONTROLLED RELEASE

AVAILABLE IN
50 LB. BAGS,
1,000 LB., AND
2,000 LB.
TOTES



Sustâne All-Organic formulations are allowed for Certified Organic Crop Production, supply 45, up to 60 days slow-release nitrogen and improves all soil types.

Product	Particle Size/N-Release Rate	Application
Sustâne 2-3-3 Concentrated Compost Soil Builder	Coarse Grade (0.8-3.0 mm) 80% SRN for 7-10 weeks feeding	Replenishes the soil with a rich supply of humus combined with all essential nutrients. Improves soil health. 
Sustâne 4-6-4 Landscapers' Choice and Plant Establishment	Medium & Fine Grade 80% SRN for 7-10 weeks feeding	General soil preparation for landscape beds, shrubs, trees, and turfgrass establishment, incorporation into potting soils, flower and vegetable gardens. 
Sustâne 8-2-4 High Nitrogen All-Organic	Medium Grade 90% SRN for 7-10 weeks feeding	Production of bedding and foliage crops, hanging baskets, herbs and vegetables. 
Sustâne 8-4-4 High Nitrogen All-Organic Container Media Grade for Soil Blends	Container Media Grade (0.6 mm - 2.8 mm) 90% SRN for 7-10 weeks feeding	Specifically designed for professional nursery and greenhouse applications. Ideal for plug production, and organic bedding and foliage crops, herbs, and vegetables. 

Sustâne Natural Base formulations combine Sustâne Organic with the best of Coated Controlled Release Fertilizers (CRF) to supply 70, 90, 120 or 180-day slow-release nitrogen.

Product	Particle Size/N-Release Rate	Application
Sustâne 12-12-12 Controlled Release NPK + Organic	Medium Grade 90-Day Organic + CRF	All-purpose fertilizer for use in landscape beds, hanging baskets and container production of herbaceous perennials, bedding, and foliage crops.
Sustâne 16-4-8 Controlled Release NPK + Organic	Medium Grade 120 Day or 180 Day Release Organic + CRF	Developed as a combination fertilizer to provide nursery stock with a coated controlled released 4-1-2 nutrient package blended with a 50% Sustâne organic base.
Sustâne 18-1-8+Fe Slow-Release Nitrogen + Organic and Chelated Iron	Medium Grade 70-Day Organic + PCSCU & MU Container Topdress or Turf Maintenance	Economical and safe method to feed plants longer into the growing season. Contains chelated iron to promote chlorophyll (greening) production.

APPLICATION RATES

GENERAL GUIDELINES

Low Recommended for use: on salt sensitive species; when concurrent with liquid feed; with production systems utilizing low leaching fractions (less than 10%); and when applied to heavy potting substrates (total porosity greater less than 65%).

Medium Recommended for use: on medium feeding species; on most nursery stock and foliage plants; and when liquid feed is not performed concurrently.

High Recommended for use: on heavy feeding species; with production systems utilizing high leaching fractions (greater than 20%); and when applied to light, porous substrates (total porosity greater than 80%).

These rates are intended as guidelines. Sustane encourages a trial prior to changing any fertilizer program.

CONTAINER MEDIA INCORPORATION AND LANDSCAPE APPLICATION RATES

SUSTANE PRODUCT	Incorporation Rates by Volume						Incorporation Rates by Area					
	lb per cubic yard			kg per cubic yard			lb per 1,000 yards			kg. per 1,000 yards		
	Low	Med	High	Low	Med	High	Low	Med	High	Low	Med	High
4-6-4 - 45 days	11	20	30	6.5	11.8	17.8	18	36	56	9.7	19.5	30.4
8-2-4 / 8-4-4 - 45 days	5.5	10	15	3.3	5.9	8.9	9	18	28	4.8	9.7	15.2
12-12-12 - 90 days	4.5	8.5	14	2.6	5	8.3	8	16	25	4.3	8.7	13.6
16-4-8 - 120 days	6	9	13	3.5	5.3	7.7	9	17	23	4.9	9.2	12.5
16-4-8 - 180 days	8	12	17	4.7	7.1	10.1	12	22	31	6.5	11.9	16.8

- Do not store container mix more than two weeks after incorporating fertilizer. Plant material can be damaged from salt accumulation.
- If mix is stored longer than two weeks, leaching container mix may be required to remove accumulated salts.
- Do not steam sterilize container mix after fertilizer has been incorporated.
- Monitor electrical conductivity (EC) of container substrate throughout production cycle. Adjust application rates as needed.

CONTAINER TOPDRESSING APPLICATION RATES IN GRAMS

CONTAINER SIZE	Size/Rate	5" Std. (1.05 L)	6" Std. (1.77 L)	1 gallon (3.8 L)	2 gallon (7.6 L)	3 gallon (11.4 L)	5 gallon (19 L)	7 gallon (26.5 L)	10 gallon (37.9 L)	15 gallon (56.8 L)
		in.	5	6	6 3/8	9	11	11 7/8	14	15 3/8
	cm	12.7	15.2	16.2	22.9	28.0	30.2	35.6	39.0	46.7
8-2-4 / 8-4-4 - 45 days	LOW	3	6	7	15	28	45	63	77	82
	MED	7	13	19	39	67	108	140	186	200
	HIGH	10	18	28	59	104	165	237	285	306
12-12-12 - 90 days	LOW	3	4	6	13	23	37	53	64	69
	MED	6	10	15	33	56	90	117	155	167
	HIGH	8	15	23	49	86	138	200	238	255
16-4-8 - 120 days	LOW	4	6	9	20	35	55	79	34	36
	MED	6	9	14	30	52	83	119	81	87
	HIGH	7	13	20	41	73	116	166	124	133
16-4-8 - 180 days	LOW	5	8	12	26	46	74	105	45	48
	MED	7	12	19	40	69	111	158	108	116
	HIGH	10	17	26	55	97	155	221	166	178
18-1-8+Fe - 90 days Topdress	LOW	2	3	4	9	16	25	35	43	46
	MED	4	7	10	22	37	60	78	103	111
	HIGH	5	10	16	32	57	92	131	159	170
Approximate Containers per	Cubic Yard	800	450	300	140	80	50	35	21	14
	Cubic Meter	1045	589	392	183	104	65	45	27	18

SPECIALTY PRODUCTS

Sustane All-Organic 4-6-4 21-gram Root Zone Feeder Paks for all hanging baskets, potted plants, and landscape maintenance.

5-lb reusable organic cotton Compost Tea Bags for brewing 50 to 100-gallon batches.



Sustane Season Long 21-gram 16-4-8 Feeder Paks

50% Sustane Organic plus 8-Month Controlled Release Fertilizer. Ideal for long-term controlled release fertility for flowers, shrubs, and trees.



BOLSTER® Liquid Plant Growth Supplement

For quick start on bare root stock, protection against and recovery from draught and heat-stressed plants and grasses, compacted and saline soil conditions. Contains iron chelate, humic acid and seaweed extract.



Available in 2.5-gallon jugs and 1-liter bottles.

BOLSTER® Granular 4-4-4+3Fe

Sustane Organic, plus BOLSTER Plant Growth Supplement and 4 types of mycorrhizae. This is the complete solution for soil bed preparation on low organic and low biologic activity soils. BOLSTER Granular is for use in all landscape plantings and for turf grass establishment, and after core aeration. *Fine Grade*



50 lb

25 lb

BOLSTER MycoBio® Mycorrhizal Biostimulant & Bacterial Inoculant

A specially formulated blend of endomycorrhizae and beneficial *Bacillus* bacteria used for inoculating soils and growing media with the added benefits from compost and humic acid. This biologically charged granular soil amendment enhances root growth for rapid plant establishment.



Available in 40 lb bags, 6-lb jugs, and 1-lb jars.

All-Organic Sustane Hi-N 12-0-1 WDF

A high analysis water dispersible nitrogen fertilizer in powder concentrate formulated to promote rapid greening and plant growth. Sustane Hi-N 12-0-1 WDF efficiently delivers a unique blend of soluble organic nitrogen sources to drive plant growth and is effective across a diverse range of plant types and growing systems.

Available in 20-lb and 3-lb package sizes.



MYCORRHIZAE
from Sustane

Available in 40-lb. bags

Sustane Arbuscular Mycorrhizal Inoculant

Sustane's proprietary blend of endomycorrhizae with a concentration of 200 spores per gram. This product is comprised of four species: *Rhizophagus irregularis* (140 spores/g), *Rhizophagus clarus* (20 spores/g), *Septoglomus deserticola* (20 spores/g), *Claroideoglobus etunicatum* (20 spores/g).

CASE STUDIES

35 YEARS OF INDEPENDENT RESEARCH

Great new products are born from discovery, and through years of research and development. Sustane began studying and evaluating treatment effects, plant response, nutrient release, EC rates and other fertilizer responses to container grown nursery plants at North Carolina State University. Basic Sustane 4-6-4 was discovered to be the perfect base fertility compliment to commercial potting soils. From 2002 through 2012 Sustane experimented with different formulations that combined Sustane Organic with numerous sources of slow and controlled release fertilizers including SCU, methylene urea, ureaform N, and several types of polymer coated NPK products. The photo on the right shows the comparative growth differences between two identical formulations of 16-4-8 using the same coated fertilizers. The only difference between treatments was that Sustane Organic was substituted for 50% of the blend in the treatment on the right. This discovery led to the development of new combinations of Sustane plus coated NPK controlled release fertilizers available today.



Sustane 4-6-4 + Humates – The Effects of Three Commercial Potting Soil Formulations with Sustane Organic Fertilizer and Various Competitive Potting Mixes on the Growth of Three Potted Plant Species: ‘Golden Wizard’ Coleus, ‘Janie Tangerine’ Marigolds, and ‘Better Boy’ Tomatoes. Potting media contained aged pine bark: sphagnum peat moss: perlite (40:40:10) plus dolomitic lime at 5 lb per cu. yd., Therm-X wetting agent at 4 oz. per cu. yd. and Sustane 4-6-4 at 11, 16.5 and 22 lb per cu. yd. Plants growing in the three treatments containing Sustane and not supplemented with soluble liquid fertilizer were superior to those growing in Miracle Gro Enriched, Scotts + Osmocote, and Schultz Garden Safe potting mixes. The same plants growing in the three mixes containing Sustane outperformed or were equal to those growing in StaGreen All Purpose of Schultz Professional mixes. The selected cultivars of coleus and tomato that did not receive supplemental fertilizer but treated initially with the 16.5 and 22 lb per cu. yd. rate of Sustane 4-6-4 + Humates were generally superior to those growing at the 11 lb rate. All three rates of Sustane provided excellent growth on Marigolds.

Sustane 8-4-4 Vinca and marigold bedding plant material performed better when grown with Sustane 8-4-4 compared to two industry standard fertilizers with an N-P-K ratio of 1-1-1. Each fertilizer was incorporated at a rate of 0.85 pounds of nitrogen per cubic yard. The container substrate was a 50:40:10 mix (by volume) of pine bark, peat and perlite.



Sustane 8-4-4 has also been compared against Sustane 12-12-12 and 16-4-8 and against industry standard coated fertilizer formulations on multiple plant species, both short and long term crops in five different U.S. growing regions: Deep South (Mobile, AL), Mid-South (Rydal, GA), Midwest (Columbus, OH), Upper Midwest (St. Paul, MN), Pacific Northwest (Salem, OR), and North East (Cornell University, U Mass).

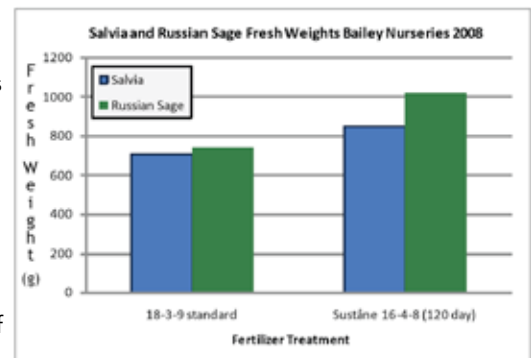
Sustane 8-4-4 was consistently the best performing fertilizer in most trials for the first 45 days. After the first 5 to 6 weeks, comparison treatments utilizing controlled release fertilizers fared better as result of ongoing nutrient release. Sustane 8-4-4 is an excellent 6-week product for any greenhouse and nursery operation.



Sustane 12-12-12 all purpose controlled release fertilizer was evaluated against two industry standard controlled release fertilizers (14-14-14 and 13-13-13) with identical N-P-K ratios and similar longevities. Coleus, fountain grass, rudbeckia, mini rose and marigold were grown under overhead irrigation during the summer of 2008. The container substrate was a 50:40:10 mix (by volume) of pine bark, peat and Perlite. Each fertilizer tested was incorporated with the container substrate at a rate of 0.85 pounds of nitrogen per cubic yard. For each species, Sustane 12-12-12 performed equal to, or better than the industry standard controls on plant quality, growth index, root quality and end-of-season dry weight.

Sustane 16-4-8 (120 day) was evaluated at Bailey Nursery in Cottage Grove, MN. Both Sustane 16-4-8 (120 day) and an industry standard controlled release fertilizer with analysis of 18-3-9 were incorporated at a rate of 1.8 pounds of nitrogen per cubic yard. The container substrate was a 4:3:2:10 mix (by volume) of composted bark and hard wood chips, peat, composted discarded plants and sand. The species evaluated were Russian sage and salvia. The trial results showed both species had superior visual ratings and end-of season fresh weights when grown with Sustane 16-4-8 compared to the 18-3-9 standard.

Sustane 16-4-8 (180 day): Azalea grown in southern Alabama with Sustane had equal growth index, quality rating and dry weight compared to Azalea grown with an industry standard controlled release fertilizer with analysis of 17-7-12. Azalea grown with Sustane had better root quality than the 17-7-12 standard. Root quality was measured to assess the potential of soluble salt damage. This result confirms the low burn potential of Sustane natural fertilizers compared to synthetic CRF products. In this study each fertilizer was incorporated at a rate of 2 pounds of nitrogen per cubic yard. The substrate used was a 3:1 mix (by volume) of pine bark and peat.



FOR SUPERIOR GROWTH, IT'S SUSTÅNE... NATURALLY.



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GREENHOUSE &
LANDSCAPE BROCHURE



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