FREE
$4.99 Value

SINCE 1929
Espoma

ORGANIC®

WHEN YOU USE THE ORIGINAL
IT SHOWS.

Organic Plant Foods & Potting Soils

Pocket Guide

ABOUT ESPOMA

Since 1929, The Espoma Company has been the pioneer in natural gardening solutions. Throughout this time, almost everything that could change has changed. Our product line has expanded tremendously. Our geographic distribution has grown enormously. And automation has significantly changed the way we manufacture our products.

But through four generations of family ownership and management, the core principle that has guided us has remained steadfastly the same: Develop the finest, most effective natural and organic products that work in harmony with nature to grow beautiful lawns & gardens, preserve natural resources, and make a greener world for future generations.

Many people today are just starting to discover the benefits that natural organics offer to soils and plants. We invite you to use this brochure as an educational tool and reference guide. And be sure to visit us online at www.espoma.com for additional information.

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Why Plants Need Fertilizer

Like all living things, plants need proper nutrition to grow. There are 19 nutrients considered essential for plant growth. Carbon, hydrogen and oxygen are supplied by air and water. Plant roots absorb the remaining 16 from the surrounding soil.

While some soils may already contain these nutrients, they may not be in a form available for plant growth. Many new homes have had the topsoil removed and are left with compact soils lacking organic matter and a nutrient reservoir. The best way to ensure that these nutrients are available in your soil is through regular applications of Espoma Tone plant foods.

Benefits of Fertilizer

- Vigorous growth
- Vibrant color
- Bigger blooms
- Healthier plants
- Resistant to droughts
- Increased fruit & vegetable yields
- More resistant to insects & diseases

Plant Nutrition

The mineral nutrients are divided into three groups based on their relative abundance in plants: Primary Nutrients (or Major Nutrients), Secondary Nutrients (or Minor Nutrients), and Trace Nutrients (or Micronutrients). Although the major nutrients are needed in the greatest quantities, a deficiency of any one nutrient can prevent growth or make plants more susceptible towards disease.

Primary Nutrients	Function	Product Solutions
Nitrogen	Leaf growth & dark green color	Dried Blood, Chicken Manure, Cottonseed Meal
Phosphorus	Root growth, flowering & seedling establishment	Rock Phosphate, Bone Meal
Potassium	Hardiness & disease resistance	Greensand, Potash
Secondary Nutrients	**Function**	**Product Solutions**
Calcium	Promotes nutrient uptake; prevents blossom end rot	Bone Meal, Garden Lime
Magnesium	Essential for photosynthesis. Activates plant enzymes needed for growth	Garden Lime
Sulfur	Promotes growth; Required for chlorophyll production	Soil Acidifier

Reading a Label

When looking at a plant food label, you will notice three numbers separated by hyphens, e.g. 5-3-3. These numbers represent the minimum percentages guaranteed (by weight) for the three Major Nutrients. For example, a 5-3-3 plant food contains a minimum of 5% nitrogen, 3% phosphate, and 3% potash.

Plant-tone

All Purpose Plant Food

5-3-3

GUARANTEED ANALYSIS

Total Nitrogen (N) 5.0%
0.4% ..... Ammoniacal Nitrogen
1.6% ..... Other Water Soluble Nitrogen
3.0% ..... Water Insoluble Nitrogen*
Available Phosphate (P_2O_5) 3.0%
Soluble Potash (K_2O) 3.0%
Calcium (Ca) 5.0%
Magnesium (Mg) 1.0%
0.6% ..... Water Soluble Magnesium (Mg)
Sulfur (S) 1.0%

Derived from: Feather Meal, Poultry Manure, Bone Meal, Alfalfa Meal, Greensand, Sulfate of Potash, and Sulfate of Potash Magnesia.

*3.0% Slow Release Nitrogen from Feather Meal, Poultry Manure, Bone Meal, and Alfalfa Meal.

ALSO CONTAINS NON PLANT FOOD INGREDIENTS

Active Ingredients:
Contains a total of 6,000,000 Colony Forming Units (CFU) per gram of the following species:
Bacillus amyloliquefaciens ..... 1,000,000 CFU/gram
Bacillus licheniformis ..... 1,000,000 CFU/gram
Bacillus megaterium ..... 1,000,000 CFU/gram
Bacillus pumilus ..... 1,000,000 CFU/gram
Bacillus subtilis ..... 1,000,000 CFU/gram
Paenibacillus polymyxa ..... 1,000,000 CFU/gram
1% Humic Acids derived from Leonardite
98.9% Inert Ingredients (inert as a non-plant food ingredient) – Fertilizer

F1381

Tips for Comparing Labels

- ✓ **Bigger doesn't mean better.** High analysis plant foods are often wasted because the plant cannot utilize all of the nutrients immediately and what it does not use leaches away from the soil.
- ✓ **Look for the slow release nitrogen.** This is usually found beneath the analysis with an asterisk and percentage of 'slow release nitrogen'. In the Plant-tone label above, 3% nitrogen of the 5% total (60%) is slow release. The more slow release the longer lasting the feeding.
- ✓ **Check the ingredients.** The derivation statement lists the sources for the nutrients guaranteed. Look to see how many ingredients are listed. The more ingredients, the more rates of release, the better the feed. Check also to see if there are any Non-Plant Food Ingredients, such as beneficial bacteria, which can help make nutrients more available to plants.

Types of Plant Foods

When nutrients become available to a plant, they are in the same chemical form regardless of whether they were from a synthetic or organic plant food. However, this statement fails to acknowledge that the process by which plants are fed greatly differs between organic and synthetic fertilizers. It is this process which makes the use of organic fertilizers preferred over synthetic ones.

There are generally three types of plant foods (see table). **Water Soluble** plant foods are mixed with water and applied with a watering can or hose end sprayer. They offer immediate nutrition but do not last long and require frequent applications. **Controlled Release** products last longer but lack many of the benefits that **Natural Organics** offer.

Type of Plant Food	How They Work	Examples
Water Soluble	Dissolve in water & release nutrients immediately	Ammonium Sulfate, Urea, Ammonium Phosphate
Controlled Release	Nutrient release delayed by coating or chemical reaction	Sulfur Coated Urea, Methylene Urea, Polymer Coated Urea
Natural Organics	Digested by soil microbes which release nutrients in a form available to plants	Bone Meal, Poultry Manure, Kelp Meal, Feather Meal

Benefits of Natural Organics

Natural Organic plant foods generally refer to any material derived from plant, animal or mineral origin that offer nutritional value to plants. The nutrients found in organic plant foods are in a complex form that must be digested by microbes found in the soil in order to be released in a form for plants to absorb through their roots. This process offers several benefits to both plants and soil:

- ✓ **Improve Soil Structure.** When microbes digest the nutrients found in organic plant foods, a by-product known as humus is created. Humus enhances a soil's capacity to hold the proper balance of water, air, and nutrients that are required for plants. Its spongy consistency promotes deeper root growth, which leads to more vigorous top growth and greater drought resistance.
- ✓ **Long-Lasting, Slow Release.** The process by which natural organic nutrients are released can last up to several months. As soil temperature rises, so does the plant's need for nutrition. Microbial activity also rises with soil temperature and therefore plants receive the proper amount of nutrition as they require it.
- ✓ **Safe to Use.** Natural organic plant foods are not considered hazardous or toxic and therefore do not pose the dangers to children, pets and the environment that are associated with pesticides and other products. Unlike synthetic plant foods which usually offer the three major nutrients, natural organics are rich in many of the secondary and trace nutrients that are critical for optimum growth and vitality.
- ✓ **Won't Burn.** Organic plant foods have an extremely low salt index which greatly lowers the risk of burning the plants during a drought or if fertilizer is accidentally over applied. (Burning can be identified by plants wilting, turning brown and eventually dying.)
- ✓ **Won't Leach Out of Soil.** Natural organic fertilizers do not leach out of the soil. Therefore, the nutrients are consistently available when plants need them.

Planting Tips

- ✓ Dig hole twice as wide and same depth as the root ball.
- ✓ Loosen roots and spread them into prepared hole.
- ✓ Remove 1/2 of the soil and replace it with compost, peat moss or Espoma Organic® Garden Soil.
- ✓ Mix in the appropriate amount of Bio-tone® Starter Plus.
- ✓ Refill hole with amended soil.
- ✓ Do not mound stems. Water thoroughly and add mulch to conserve water and control weeds.

Feeding Tips

Figure 1

- ✓ In general, feed trees and shrubs twice a year – Spring and Fall.
- ✓ In general, feed flowers and vegetables once per month through the growing season.
- ✓ Apply plant food like salt and pepper, spreading thinly around drip line of plant. (See Figure 1.)
- ✓ Do not apply plant food any closer than three inches to stem of plant.
- ✓ Wash off any plant food that falls on stems or foliage.
- ✓ Water thoroughly and add mulch to help conserve water and control weeds.

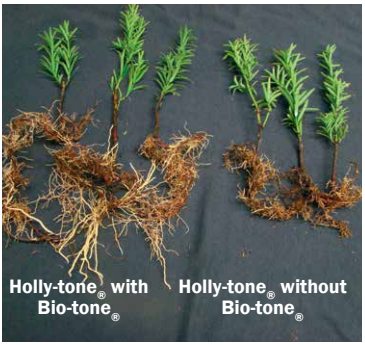
Type of Plant	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.
Acid-Loving									
Shade/Fruit Trees									
Annuals/Perennials									
Roses									
Bulbs									
Tomatoes									
Vegetables									
Lawns									
Citrus									
Palm									

Espoma Tone Plant Foods

Since 1929, Espoma Tones have defined the naturally beautiful garden. Each Tone has been carefully developed in conjunction with nursery and horticultural professionals to produce outstanding flowers, shrubs and vegetables. No fillers, sludge or inert ingredients are ever used. And since every ounce of every Tone is manufactured in our own plant under our strict supervision, quality is guaranteed.

Espoma Tone Benefits

- Complex blends of natural organics
- Approved for organic gardening
- Improves soil structure
- Long-lasting, slow release feeding
- Safe. Won't burn or leach away
- Ready to use – no mix or mess
- Enhanced with Bio-tone® Microbes



Holly-tone® with Bio-tone®

Holly-tone® without Bio-tone®

"The Results on yew reported here are some of the most dramatic root growth responses that have been documented…"

Dr. Joe Kloepper — Auburn University.

Enhanced with Bio-tone®

Bio-tone is our proprietary blend of selected soil microbes proven to enhance plant growth. Bio-tone has been shown to increase root growth, shoot weight, bloom count, and yields on fruits and vegetables. The addition of Bio-tone to our Tone plant foods ensures your plants will always have the best opportunity to thrive.

Starter Plant Food

What: **Bio-tone® Starter Plus 4-3-3** is an all natural plant food that is combined with a stronger concentration of our beneficial bacteria along with both endo and ecto mycorrhizae*. It is an ideal starter plant food originally designed for professionals. Bio-tone Starter Plus will increase root mass and help avoid transplant loss in difficult planting conditions.

"IT'S LIKE PLANTING INSURANCE!"

When: At time of planting

Qty: ***Bed Preparation:*** 4 lbs. (12 cups) per 100 sq. ft.

Potting Mixes: 1 cup per cubic ft.

Per Plant: See table

*For more information on mycorrhizae, see page 28.

Plant Size	Cups	Lbs.
Up to Two Gallon	1	1/3
Three Gallon	1-1/2	1/2
Five Gallon	2	2/3
Fifteen Gallon	4	1-1/3
24" Ball	6	2
36" Ball	24	8

With and without Bio-tone ~ Bigger blooms and plant growth.

Evergreens & Flowering Shrubs

What: **Holly-tone® 4-3-4**
For Azaleas, Rhododendron & Other Acid-Loving Plants (see table below)

When: Early Spring and Fall (Half rate in Fall)

Qty: ***New plants:***
Mix 1 cup into soil mix

Established shrubs:
1 cup per ft. branch spread*

Established trees:
3 cups per in. trunk diameter

*Same as drip line (diameter across entire plant)

HOLLY-TONE® CONTAINS ELEMENTAL SULFUR TO HELP ACIDIFY SOIL!

What: **Evergreen-tone® 4-3-4**
For Azaleas, Rhododendron & Other Acid-Loving Plants (see table below)

When: Early Spring and Fall (Half rate in Fall)

Qty: ***New plants:***
Mix 1 cup into soil mix

Established shrubs:
1 cup per ft. branch spread*

Established trees:
3 cups per in. trunk diameter

*Same as drip line

Table of Acid-Loving Plants:

Amaryllis	Ferns	Juniper	Pachysandra
Andromeda	Fir	Leucothoe	Phlox
Aster	Gardenia	Lily-of-the-Valley	Pieris
Azalea	Heath	Lupine	Pine
Bayberry	Heather	Magnolia	Raspberry
Bleeding Heart	Hemlock	Marigold	Rhodos
Blueberry	Holly	Mountain Ash	Spruce
Camellia	Huckleberry	Mountain Laurel	Strawberry
Dogwood	Hydrangea	Oak	Woodsorrel
Evergreens	Inkberry		And more...

*Boxwood & Arborvitae are evergreens that are NOT acid-loving. Feed them Plant-tone.

All-Purpose

What: **Plant-tone® 5-3-3**

When: Trees & Shrubs:
Spring & Fall
Flowers & Vegetables:
1x per month during the growing season

Qty: ***New beds:***
4 lbs. per 100 sq. ft.

New Plants:
1 cup mixed with soil

Established Shrubs:
1 cup per ft. branch spread

Iron Supplement

What: **Iron-tone® 3-0-3**

- Turns yellow to green naturally
- Will not stain concrete surfaces

When: Early Spring or any time during the growing season

Qty: ***Flowers, Veggies & Berries:***
3 cups per 100 sq. ft.
or 1/2 Tbsp. per plant

Trees & Shrubs: 1 – 2 cups around drip line of plant

Lawns: 4 lbs. per 1,000 sq. ft.

Berries

What: **Berry-tone® 4-3-4**
For Blueberries, Strawberries & Raspberries

When: Early and Late Spring

Qty: ***New plants:***
Mix 1 cup into soil mix

Established shrubs:
1 cup per ft. branch spread*

*Same as drip line (diameter across entire plant)

Roses

What: **Rose-tone® 4-3-2**

When: At time of planting; then 1x per month during the growing season

Qty: ***Bed Preparation:***
6 lbs. per 100 sq. ft.

New Plants:
3/4 cup per plant

Established Plants:
1-1/4 cups per plant

Bulbs

What: **Bulb-tone® 3-5-3**
(for daffodils, tulips, gladioli, crocus, hyacinths & iris)

When: When planting in Spring, Fall, or after flower blooms

Qty: ***New Beds:*** Mix 1-1/2 lbs. per 25 ft. of row

Established Beds:
4 lbs. per 60 sq. ft.

Per Bulb: Mix 1-1/2 heaping tsp. in soil

Annuals & Perennials

What: **Flower-tone® 3-4-5**

When: 1x per month during growing season (after threat of frost is gone)

Qty: ***New Beds:***
4 lbs. per 80 sq. ft.

Seeds:
Mix 2 Tbsp. with soil

New Flowers:
2 Tbsp. per plant

Established Plants:
1/2 cup per plant

Fruit, Shade, & Ornamental Trees

What: **Tree-tone® 6-3-2**

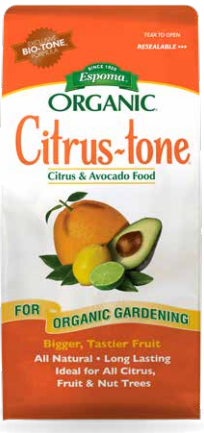
When: Spring and Fall

Qty: ***Small Trees***:
(< 2 in. diameter): 3 lbs.
(9 cups) per in.

Medium Trees:
(3 – 6 in. diameter): 4 lbs.
(12 – 15 cups) per in.

Large Trees:
(> 6 in. diameter): 6 lbs.
(18 cups) per in.

Citrus, Avocado & Nut Trees



What: **Citrus-tone® 5-2-6**

When: Pre Bloom, Post Bloom, & Fall

Qty: ***New Trees:*** 1 cup mixed into soil

Established Trees:
Up to 3 ft. ht: 2 lbs. (6 cups)
3 – 6 ft. ht: 4 lbs. (12 cups)
7 – 9 ft. ht: 6 lbs. (18 cups)
9+ ft. ht: 8 lbs. (24 cups)

Container Rate: Apply 1 tsp. per 4" of pot diameter (double for pots over 12 inches)

Palm, Hibiscus & Tropical Plants

What: **Palm-tone® 4-1-5**

When: Every three months

Qty: ***New Trees:*** 1 cup mixed into soil

Established Palms: 3 lbs. per 100 sq. ft. of palm canopy coverage

Established Hibiscus:
Very Small: 1/4 lb. (3/4 cup)
Small: 1/2 lb. (1-1/2 cups)
Medium: 1 lb. (3 cups)
Large: 1-1/2 lbs.
(4-1/2 cups)

Container Rate: Apply 1 tsp. per 4" of pot diameter (double for pots over 12 inches)

Tomatoes

What: **Tomato-tone® 3-4-6**

When: ***Seedlings and transplants:***
Mix into soil prior to planting

Established Plants:
Feed every two weeks during the growing season

Qty: ***Rows:*** 1 cup each side per 5 feet of row

Single Plants:
3 Tbsp. per plant

Potted Plants:
Apply 1-1/2 tsp. per 4" of pot diameter (1-1/2 Tbsp. per 12" of pot diameter)

Vegetables & Herbs

What: **Garden-tone® 3-4-4**

When: ***Seedlings and Transplants:***
One week to 10 days after planting

Established Plants:
Feed monthly

Qty: ***Single Plants:***
Sprinkle 1/3 cup per plant

Rows: Sprinkle 1-1/3 cups each side per 5 ft. of row or 10 lbs. each side per 100 ft. of row

Azaleas & Evergreens

What: **Azalea-tone® 4-3-4**
For Azaleas, Rhododendron & Other Acid-Loving Plants

When: Early Spring and Fall (Half rate in Fall)

Qty: ***New plants:***
Mix 1 cup into soil mix

Established shrubs:
1 cup per ft. branch spread*

Established trees:
3 cups per in. trunk diameter
*Same as drip line (diameter across entire plant)

Conventional Lawn Care

Problems with Conventional Lawn Care:

Conventional lawn care programs have been popular for decades but have two major problems. The first problem is they often spread pesticides across your entire lawn, regardless of whether you have a problem or not. In fact the EPA estimates that Americans apply 90 million pounds of pesticides every year in order to get lush green lawns. These pesticides are potentially harmful to children, pets and the environment. The second problem is that these programs use fast acting, synthetic fertilizers that are made using fossil fuels such as natural gas and coal. These fertilizers can potentially burn your lawn and leach away into nearby waterways.

- ✓ **Potentially harmful to Kids & Pets**
- ✓ **Can leach into nearby groundwater**
- ✓ **Can kill earthworms & beneficial microbes**
- ✓ **Short lived nutrition**
- ✓ **High burn potential**

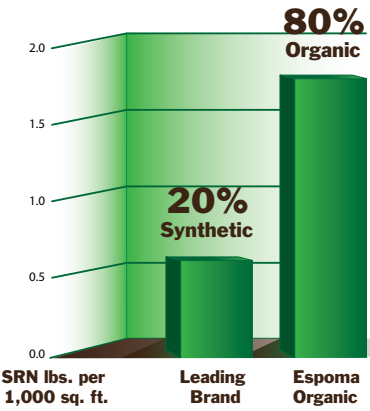
Organic Lawn Care

Benefits of Organic Lawn Care:

Organic lawn care focuses on growing a healthy lawn because a healthy lawn is the best protection against weeds, insects and diseases. To have a healthy lawn, you need a healthy soil. Healthy soils are crumbly, brown, and alive with earthworms and beneficial microbes. Healthy soils let grass roots grow deep, making them more resistant to drought and stress. To have a healthy soil, you need to avoid the use of pesticides and synthetic fertilizers and follow certain guidelines that are outlined in this guide. One of the keys is to feed your lawn with natural and organic fertilizers that not only help to grow a beautiful, green lawn, but also one that is safe for kids and pets.

- ✓ Safe for Kids, Pets & the Environment
- ✓ Won't burn lawns or leach out of soil
- ✓ Provides long lasting nutrition
- ✓ Creates healthy lawns & soil
- ✓ Requires less frequent mowing

% Slow Release Nitrogen



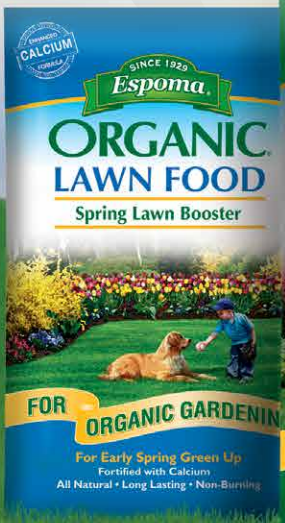
Espoma Organic Lawn program contains 2.5X more Slow Release Nitrogen than the leading synthetic program. This means that Espoma products will feed for a much longer period of time.

Why Feed with Espoma Organic Lawn Food?

The Espoma Organic program is ideal for any lawn. It contains no pesticides or synthetic ingredients. It adds organic matter to improve your soil while providing long lasting nutrition. In fact, it contains 2.5X more Slow Release Nitrogen than the leading synthetic program. That means it lasts longer, won't burn or leach away, and you won't have to mow your grass as often. Each product covers 5,000 sq. ft. and is specifically formulated to optimize greening at the time of application.

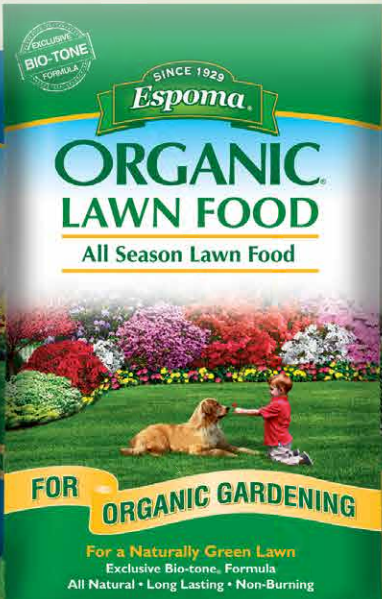
5,000 Sq. Ft. Espoma

*Use Early Spring	Use Late Spring or Anytime



Spring Lawn Booster 8-0-0
Contains extra Calcium to help strengthen your turf's physical structure, increase nutrient uptake and to help protect it from disease.

30 lbs. covers 5,000 sq. ft.



All Season Lawn Food 9-0-0
Contains Bio-tone® Microbes that help make nutrients more available to your lawn.

28 lbs. covers 5,000 sq. ft.

*Substitute Espoma Organic Weed Preventer if desired – see page p.21

Join our gardening community at facebook.com/espomaorganic

Organic Lawn Foods:

- Feed Slowly - Last Longer
- Encourage soil microbes - the foundation of healthy soil
- Won't burn or leach out of the root zone
- Produce exceptional quality lawns
- Safe for People, Pets & the Environment

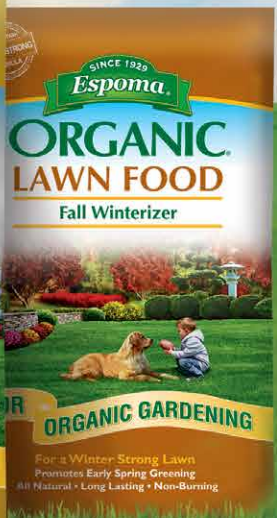
Organic Feeding Schedule

Use Early Summer

Summer Revitalizer 8-0-0
Contains Iron that greens up the lawn without staining your sidewalks or driveways. Also contains Bio-tone® Microbes.

30 lbs. covers 5,000 sq. ft.

Use Late Summer



Fall Winterizer 8-0-5
Contains extra Potash for winter survival and next year's Spring greening.

30 lbs. covers 5,000 sq. ft.

ULTRA FAST LIME

Why Lightning Lime®?

Lightning Lime is no ordinary limestone product. Approved for organic gardening, Lightning Lime offers five times the coverage of ordinary limestone. That's because Lightning Lime is enhanced with natural humic acids that help plants convert calcium into an immediately available form. Lightning Lime works in just 6–8 weeks versus 12–14 months for traditional lime, and is much less dusty than traditional limestone. Saves time, labor, space and money!

Espoma Organic® Lightning Lime®

- 5X the coverage of regular pelletized limestone
- Saves time, labor & space
- Adjusts pH fast (just 6-8 weeks)
- Dust free formula
- Approved for organic gardening
- 30 lbs. covers up to 5,000 sq. ft.

Why is pH Important?

Most lawns perform best when soil pH is between 6.5 and 7.0. Over time, soils can become overly acidic from acid rain and decomposing plant material. This can make fertilizers less effective and allow moss and thatch build up as growth becomes less vigorous. Lightning Lime helps correct acidic conditions and maximize fertilizer effectiveness. Espoma Organic Lightning Lime works quickly after watering to raise soil pH and help grow a greener lawn.

When to Apply: Lightning Lime can be applied anytime the ground is not frozen. For best results apply when turf is actively growing - Spring, Summer & Fall.
Lightning Lime can be applied the same day as fertilizer or seed.

How much Lightning Lime do I need?	
Soil pH	**Bags needed per 5,000 Sq. Ft.**
Higher than 7.0	None needed
6.0 - 7.0	1 bag
5.5 - 6.0	2 bags
Lower than 5.5	3 bags

What: **Espoma Organic® Weed Preventer 9-0-0**

Made from pure, granulated corn gluten meal, a by-product from the manufacturing of cornstarch. Prevents dandelions, crabgrass and other common weeds. Efficacy improves each year when used as directed.

When: Apply 2x per year: Early Spring and Fall. Do not use if you have or plan to seed your lawn within 60 days.

Qty: 25 lbs. covers up to 2,500 sq. ft .

Lawn Care Tips:

Watering

Water Regularly. Watering should be a regular part of your lawn maintenance, especially during hot weather. Frequency depends on many variables, including grass and soil type, (i.e., sand vs. clay), and the amount of natural rainfall.

Water Thoroughly. Water with about one inch of water when it begins to wilt in the Spring. Deep watering encourages deeper rooting, making your lawn less susceptible to root-pruning insects and diseases. During the Summer, watering should be light and frequent.

Water Early. The best time to water your lawn is early morning when evaporation losses are low and leaves dry quickly. Evening watering does not allow time for the leaves to dry and makes your lawn more susceptible to diseases. Never apply water faster than the soil can absorb it.

Mowing

Keep Mower Blades Sharp. Avoid ripping the grass to reduce the chance of disease.

No Buzz Cuts. Resist the urge to cut your grass too short. Taller grass helps suppress weeds. Always leave it at about 3 – 3-½" high. Cut often enough so you never remove more than 1/3 of its total height. With organics you will mow less.

Leave Grass Clippings. Use a mulching mower to return clippings to the lawn. They provide up to 30% of a lawn's yearly nutritional needs. Properly mowed lawns should not have thatch or clumps of clippings. The use of organic fertilizers helps to prevent the build-up of thatch.

Soil pH.

pH Range. Most lawns prefer a soil pH range of 6 – 7. Outside of that range, your lawn won't utilize the nutrients in the soil. You can check the pH with a simple home test kit available at most Hardware Stores and Garden Centers.

Raising and Lowering pH. If the pH is too low, your soil is acidic and you will need to add lime. If the pH is too high, your soil is too alkaline and you will need to add a product containing sulfur.

What: **Espoma® Lawn Food 15-0-5**

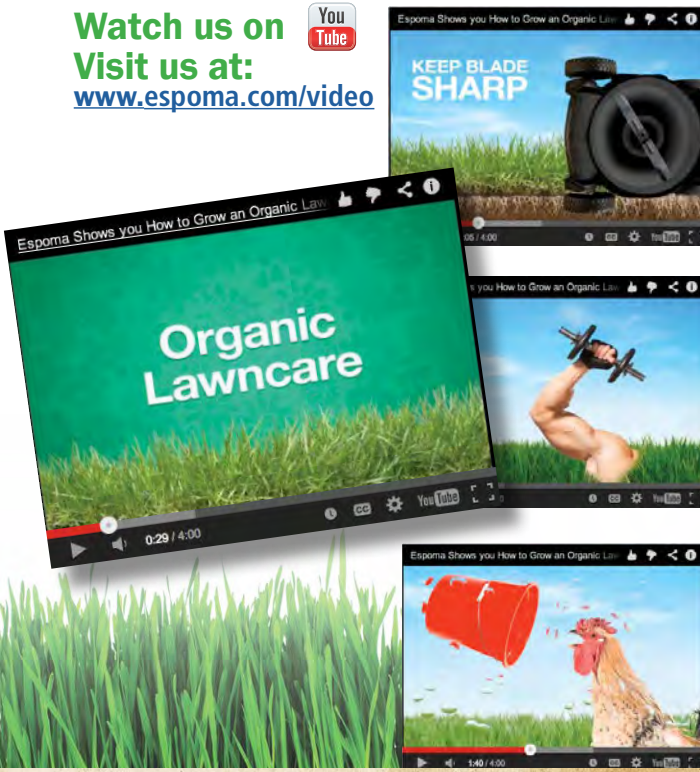
(For All Seasons)
For those customers who desire the best of both worlds, Espoma Lawn Food is the answer. It combines the benefits of natural organics with the higher nitrogen and coverage of slow release synthetics. It's non-toxic, safe to use around children and pets, and ideal for any season.

When: Early Spring, Late Spring, Early Fall, Late Fall

Qty: 20 lbs. covers 6,000 sq. ft.
40 lbs. covers 12,000 sq. ft.

Learn How to Grow a Chemical-Free Lawn. It's Simple...

Watch us on YouTube
Visit us at:
www.espoma.com/video



Organic Liquid Plant Foods

Espoma Organic® liquid concentrate plant foods are loaded with natural ingredients and millions of beneficial microbes to grow bigger, more beautiful plants.

Grow! 2-2-2
ALL PURPOSE PLANT FOOD

- Promotes rapid root growth
- Encourages deep, green foliage
- For complete & balanced feeding
- Get bigger more beautiful plants!
- In 16 oz. concentrate

1) SHAKE:
Shake well prior to mixing with water.

2) MIX:
Mix at a rate of 1/2 cap (2 tsp.) per quart of water.

3) DRENCH:
Thoroughly drench the soil around the plant.

4) REPEAT:
Repeat every 2-4 weeks throughout the growing season.

For Indoor & Outdoor Plants

Bloom! 1-3-1
SUPER BLOSSOM BOOSTER

- Stimulates abundant fruit
- Promotes & prolongs blooming
- High phosphate formula
- In 16 oz. concentrate

Tomato! 1-3-1
TOMATO & VEGETABLE FOOD

- Grows plump, juicy tomatoes
- With Calcium to prevent blossom end rot
- In 8 & 16 oz. concentrate

Join our gardening community at facebook.com/espomaorganic

Indoor Plant Care

Indoor! 2-2-2
HOUSEPLANT FOOD

- Promotes growth & greening
- For Indoor plants
- In 8 oz. concentrate

Violet! 1-3-1
AFRICAN VIOLET FOOD

- Promotes flowering
- For Indoor plants
- In 8 oz. concentrate

Feed Plants Instantly

Cactus! 1-2-2
SUCCULENT PLANT FOOD

- Promotes growth & flowers
- For Indoor plants
- In 8 oz. concentrate

Orchid! 1-3-1
BLOOM BOOSTER

- Promotes flowering
- For Indoor plants
- In 8 oz. concentrate

Soils

Ideal Soil for Planting in Containers

The roots of container plants are exposed to more rapid fluctuations and greater extremes in temperatures than plants grown in the ground. A good potting mix is therefore essential in helping to buffer plant roots against environmental conditions like heat and drought.

A good potting mix should physically support the plant and supply adequate air and water to plant roots. The mix should be light enough so that roots can move and grow within it, yet heavy enough to hold sufficient moisture and support the plant. If you see a pool of water that is not draining after you water your plant, the mix is too heavy and compact. Good mixes should also have the proper pH, which in general is between 5.8 and 6.4 for most container plants.

Planting in Containers

- Select a container that is larger than your plant's current pot and has a drainage hole at the bottom with a tray beneath it to catch excess water.
- To prevent soil from escaping, add a layer of small stones to the bottom of the container.
- Fill container 1/3 full with the appropriate Espoma Organic mix.
- Carefully remove the plant from its current container and gently loosen the root ball.
- Center the plant in the new container and fill with additional potting mix.
- Allow at least one inch between the rim of the pot and the top of the soil.
- Gently pat down the mix and add more if required.
- Make sure the plant is about the same depth in the soil as it was in its original container.
- Water plant thoroughly with a slow gentle spray and allow to drain.

Growing Tips for Containers

- ✓ **Repotting:** House plants require regular repotting for optimum growth. If your plant is not growing, or if you see roots growing from the drainage holes at the bottom of the pot, it's time to repot to a larger container. Follow directions from previous page.
- ✓ **Watering:** Avoid over watering by allowing the soil to dry to the touch between waterings. Use a tray or saucer to catch water as it drains from the bottom. Do not allow plants to stand in water. Outdoor container plants can require frequent waterings (once per day in hot, dry conditions).
- ✓ **Light:** Some plants thrive in direct sun exposure while others prefer shade. Check plant tag or consult your local garden center to determine preferred exposure.
- ✓ **Feeding:** Frequent watering can easily leach nutrients out from the root zone. Feed plants monthly during the growing season beginning two weeks after planting with Espoma Organic® Plant Foods.

Espoma Organic Potting Mixes

Espoma Organic® Potting Mixes contain a rich blend of only the finest natural ingredients. No synthetic plant foods or chemicals are used and each product is approved for organic gardening.

A state of the art, fully automated blending, screening and packaging system ensures consistent, high quality mixes in every bag. Each product is specifically formulated to provide the perfect balance of air and water, as well as the proper pH for plants. And several of the mixes have been enhanced with Myco-tone®, a proprietary blend of both endo & ecto mycorrhizae, which have been proven to promote root growth, increase water uptake, and reduce drought stress and transplant shock.

- **No Synthetic Chemicals**
- **Approved for Organic Gardening**
- **Consistent, High Quality Blends**
- **Enhanced with Myco-tone®**
- **Fortified with Worm Castings, Alfalfa Meal, Kelp Meal & Feather Meal**

Premium Organic Soil for Container Planting

Espoma Organic Potting Mix

A rich, premium blend of sphagnum peat moss, humus and perlite that has been enhanced with Myco-tone® and fortified with Worm Castings, Alfalfa Meal, Kelp Meal and Feather Meal.

Use For:
All indoor & outdoor container plants

How to Use:
See *Planting in Containers* tips

Espoma Organic Moisture Mix

A rich organic potting mix enhanced with Coir & Myco-tone® for superior water retention. Grow big, beautiful plants with less frequent watering.

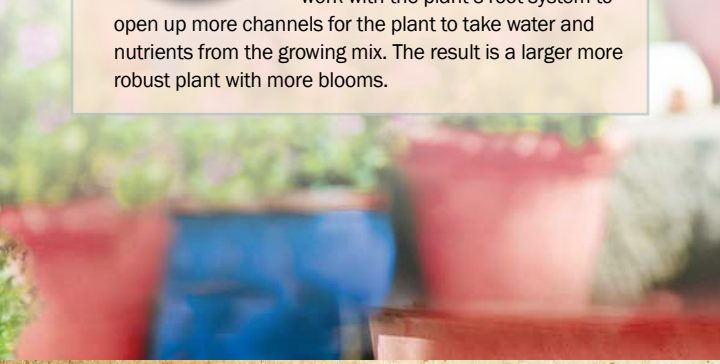
Use For:
All indoor & outdoor container plants

How to Use:
See *Planting in Containers* tips

What is Myco-tone®?

ENRICHED WITH MYCO-TONE® FOR STRONGER ROOTS

Myco-tone is a proprietary blend of both endo & ecto mycorrhizae, which are naturally occurring fungi that have been shown to enhance plant growth and reduce the amount of watering required. Myco-tone® fungi work with the plant's root system to open up more channels for the plant to take water and nutrients from the growing mix. The result is a larger more robust plant with more blooms.



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Espoma Organic Seed Starter Mix

A rich, premium blend of sphagnum peat moss, humus and perlite that has been enhanced with Myco-tone®.

Use For:
Seedlings and cuttings

Starting from Seeds

- Fill a shallow container with Espoma Organic Seed Starter. Peat pots or special seed starting trays with drainage holes make transplanting easier.
- Wet the soil and allow to drain.
- Plant seeds according to package directions.
- Place container in a warm, bright location (avoid direct sunlight).
- Keep soil moist by misting with a spray bottle.
- When the plant develops its first true leaves, transplant it into a larger container or outdoors in a prepared bed.

Note: Dig seedling out of its mix and handle with care to avoid damaging the fragile stem and root system.

Espoma Organic Cactus Mix

A rich, premium blend of sphagnum peat moss, humus, and perlite that has been enhanced with Myco-tone®.

Use For:
Succulents, cactus, palm and citrus container plants

How to Use:
See *Planting in Containers* tips

Espoma Organic African Violet Mix

A rich, premium blend of sphagnum peat moss, humus, and perlite.

Use For:
African Violets & other houseplants

How to Use:
See *Planting in Containers* tips

Espoma Organic Orchid Mix

All natural blend of pine bark, perlite and horticultural charcoal.

Use For:
Orchids and other epiphytic plants

How to Use:

- Presoak Espoma Organic Orchid Mix for 24 hours and allow to drain.
- Remove orchid from container & remove dead roots. Trim active roots to 6" in length. Fill container to 1/3 full with Orchid Mix.
- Position single stem plants in the center of the new pot. Position multi-stemmed plants against the pot wall. Staking may be required until the plants are fully established.
- Add more Mix to gently cover roots and fill pot to one half inch below rim. Water thoroughly.

Espoma Organic Bonsai Mix

All natural calcined clay, expanded shale & aged forest products.

Use For:
Bonsai

How to Use:
See *Planting in Containers* tips

Espoma Organic Charcoal

100% all natural horticultural charcoal.

Use For:
Containers & Terrariums

How to Use:
See *Planting in Containers* tips

Potting Mix Amendments

Espoma offers three natural amendments which can be used to lighten heavy potting mixes and allow for better aeration and drainage:

- ✓ **Sphagnum Peat Moss** is a naturally occurring material formed from partially decomposed moss plants which accumulate in bogs.

- ✓ **Perlite** is a volcanic mineral which expands to about 13 times its original volume when heated to about 1600° F.

How to Use:

- ✓ **To Improve Heavy Potting Mixes:** Mix one part potting mix to one part of one of the two amendments.
- ✓ **To Create Your Own Potting Soil:** Mix two parts Peat Moss to one part compost and one part Perlite.
- ✓ **To Create a Seed Starting or Cutting Mix:** Peat Moss can be used by itself. To create a quality seed starting mix use 80% Peat Moss and 20% Perlite.
- ✓ **For Bulb Storage:** Use either Peat Moss or Perlite, cover the bulbs completely and do not wet or compact.

Organic Composts & Soils

Organic Cow Manure

- Rich dehydrated manure
- Improves soil structure

Raised Bed Mix

- Enhanced with Myco-tone®
- Fortified with worm castings

Land & Sea Compost

- Rich organic compost
- With crab & lobster shells

Mushroom Compost

- Rich organic compost
- Improves soil structure

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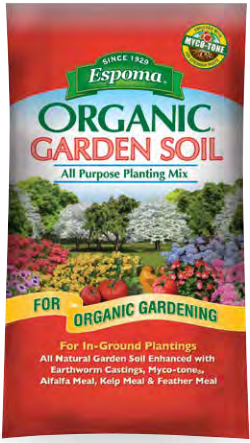
Organic Garden Soils

A rich premium blend of organic soil amendments that have been enriched with Myco-tone® and fortified with Worm Castings, Alfalfa Meal, Kelp Meal and Feather Meal, for In-Ground Plantings.

Organic Vegetable & Flower Garden Soil

Organic All-Purpose Garden Soil



Organic Lawn Soil

For all natural lawn repair and seeding. Contains sphagnum peat moss, compost, earthworm castings, alfalfa meal, kelp meal and yucca extract to create a superior environment for grass seed germination and establishment.

Application:

Overseeding Established Lawns: Mow and remove clippings. Spread a 1/4 inch layer of Espoma Organic® Lawn Soil over the entire lawn. Rake smooth. Water frequently until new grass is established.

Top Dressing Established Lawns: Mow and remove clippings. Spread a 1 inch layer of Espoma Organic® Lawn Soil over the entire lawn. Rake smooth. Water thoroughly.

Compost Starter

What is Composting?

Composting is the biological process in which microorganisms convert organic material such as manure, leaves, grass, and food wastes into a soil-like material called compost. Composting is the same process that decays leaves and other organic remains in nature except that composting controls the conditions so that materials decompose faster.

Optimal Conditions for Composting

Composting is quickest when conditions that encourage the growth of microorganisms are established and maintained. The most important conditions include:

Oxygen & Aeration: Composting consumes large amounts of oxygen. If oxygen is limited, the composting process slows down. Offensive odors are usually a good indication of a need for greater aeration.

Ample Nutrients: Carbon, nitrogen, phosphorous, and potassium are the primary nutrient requirements for microorganisms and plants. Microorganisms use carbon for both energy and growth while nitrogen is essential for protein and reproduction. In general, organisms need about twenty-five times more carbon than nitrogen. Raw materials blended to provide a C:N ratio of 25:1 to 30:1 are ideal for active composting, although C:N ratios from 20:1 to 40:1 will usually give good composting results.

Microorganisms: Successful composting relies on the successful growth and maintenance of microbial populations. Generally, sufficient organisms can be found with most organic materials. However, adverse conditions such as low oxygen, poor nutrients, inadequate moisture, or improper pH can slow, stop or even kill the growth of these vital decomposers. Espoma Compost Starter provides the insurance that their growth will proceed optimally by enriching the pile with thermophilic, mesophilic, and special varieties of microbes that are specifically cultured for rapid and complete composting.

Taking Care of the Compost Pile

To ensure that adequate amounts of oxygen are maintained in the pile, turning is an ideal technique. The main objectives of turning are to shift materials from the outer parts of the pile closer to the center for better decomposition and to incorporate oxygen. The pile should be turned more frequently during the warmer periods. Piles should be turned immediately if ammonia or other offensive odors are detected.

The composting pile should also be kept moist for proper decomposition. Inadequate moisture reduces microbial activity, while excessive water may cause anaerobic conditions. A thin outer layer of dry material is unavoidable. During dry weather it may be necessary to add more water.

Common Problems & Solutions

Problems	Probable Reason(s)	Solution
Compost does not heat up	Too wet or dry, C:N ratio too high, pile too small, pH low, not enough aeration	Add water to dry material, add Compost Starter, turn more frequently
Compost cooling	Low moisture or aeration, composting almost done	Add moisture and turn more frequently, add Compost Starter, if composting almost done - do nothing
Compost overheating	Pile too large, spontaneous combustion beginning	Add moisture, turn more frequently
Ammonia Odor	**High pH, high nitrogen**	**Add high C:N materials**
Rotten eggs odor	Too wet, not enough aeration	Add dry materials, turn more frequently
Insects	Breeding in pile, too wet	Turn more frequently, reduce moisture, add Compost Starter

Adjusting Soil pH

The pH of a soil is a measurement of its acidity or alkalinity. The scale ranges from 1 to 14 with lower numbers indicating acidity, higher numbers indicating alkalinity, and seven being neutral.

In general, soils in climates with high rainfall tend to be acidic, while those found in arid climates tend to be alkaline. The availability of certain nutrients is dependent upon soil pH. The following Espoma products help to ensure proper pH in your soil.

Soil Acidifier

Lowers soil pH and turns hydrangeas from pink to blue with this all natural amendment made from elemental sulfur and gypsum. Safer to use than aluminum sulfate.

Application Rates:
New Plants: 1-1/4 cups per plant
Established Plants: 2-1/2 cups
Container Plants: 1 Tbsp. for each 4 inches of pot diameter

How to Use: Apply in Spring. Spread evenly under the plant out to the drip line; water after the application. Repeat in 60 day intervals until desired bloom color or soil pH is achieved.

Garden Lime

The finest grade of pelletized, dolomitic limestone available. Raises soil pH so plants get the most from nutrients present. Spreads easily, reacts quickly and does not pose the hazards associated with hydrated lime. Turns hydrangeas pink.

Application Rates: In absence of a soil test, mix 2-1/2 – 5 lbs. per 100 sq. ft. (2 – 4 tbsps. per plant) into the soil in Early Spring or Fall and water thoroughly. Otherwise use the guidelines below to achieve a pH of 6.5.

Current pH	Per 100 sq. ft.	Per Plant
6.0	3-1/2 lbs.	5 cups
5.5	7-1/2 lbs.	10 cups
5.0	11 lbs.	15 cups
4.5	15 lbs.	20 cups

Loosening Clay Soil

Soil Perfector®

One application permanently improves the structure of any soil. It is derived from a ceramic mineral that is kiln-fired in excess of 2000° F. This process creates a lightweight granule capable of holding the perfect balance of water, air and nutrients for better soil structure.

Application Rates:

New Beds: Mix 1 – 2 in. layer into top 6 inches of soil

New Plants: Mix 1 part Soil Perfector to 3 parts soil

Existing Plants: Using spading fork around drip line of plant, open cracks in soil and fill in with Soil Perfector

All Natural Soil Conditioner

Perfect Plants Start with Perfect Soil

- ✓ **Permanently improves clay & sandy soils**
- ✓ **Add to all potting mixes & soils**
- ✓ **Prevents compaction & promotes root growth**
- ✓ **One time application won't break down**

Committed to the Environment

Espoma Organic® products utilize renewable and sustainable ingredients, helping to reduce their carbon footprint, and contribute to a safer, cleaner world. The Espoma Company is also a strong supporter of many community, educational, and other non-profit organizations that work and strive for a positive change to the environment for future generations.

Approved for Organic Use

- ✓ Approved for Organic Use by the CDFA
- ✓ Never Uses any Sludges or Fillers
- ✓ Safe for People, Pets and the Planet
- ✓ Renewable & Sustainable Ingredients
- ✓ Certificate of Environmental Stewardship

Zero Waste Manufacturing

Espoma has always been a minimal waste manufacturing facility and continues to strive to create zero waste during its manufacturing processes.

- ✓ Zero Raw Material Waste
- ✓ Largest Recycler of Manure
- ✓ Prevents Millions of lbs. of Raw Manure from Leaching into Waterways

Sustainability & Partnerships

- ✓ New Green Office & Onsite Recycling
- ✓ Pollinator Garden at Headquarters
- ✓ Safe Paws Lawn Care Education
- ✓ Support Community & Children's Gardening Programs
- ✓ National Garden Club Plant America! Grant Program

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100% Solar Power

The Espoma Company is taking its commitment to the environment to a higher level with a solar energy installation covering nearly 43,000 sq. ft. of warehouse rooftops & 24,000 sq. ft. of office ground. The system produces over 810,000 kilowatt hours (kWh) of electricity – enough to power over 70 homes for a full year – and will save more than 1.6 million pounds of greenhouse gas emissions annually.

In terms of reducing carbon dioxide, this is the equivalent of planting nearly 2 million trees. Solar energy also reduces costs and dependence on foreign fossil fuels. The solar panels provide a clean, renewable energy for Espoma's entire plant and office facilities.

- Espoma uses 100% solar powered electricity to run it's office and manufacturing plant.
- We have generated over 7 million kilowatt hours of electricity since it's installation.
- You can see how much energy we've saved by visiting our Energy Saving Dashboard at **www.espoma.com/company/solar**

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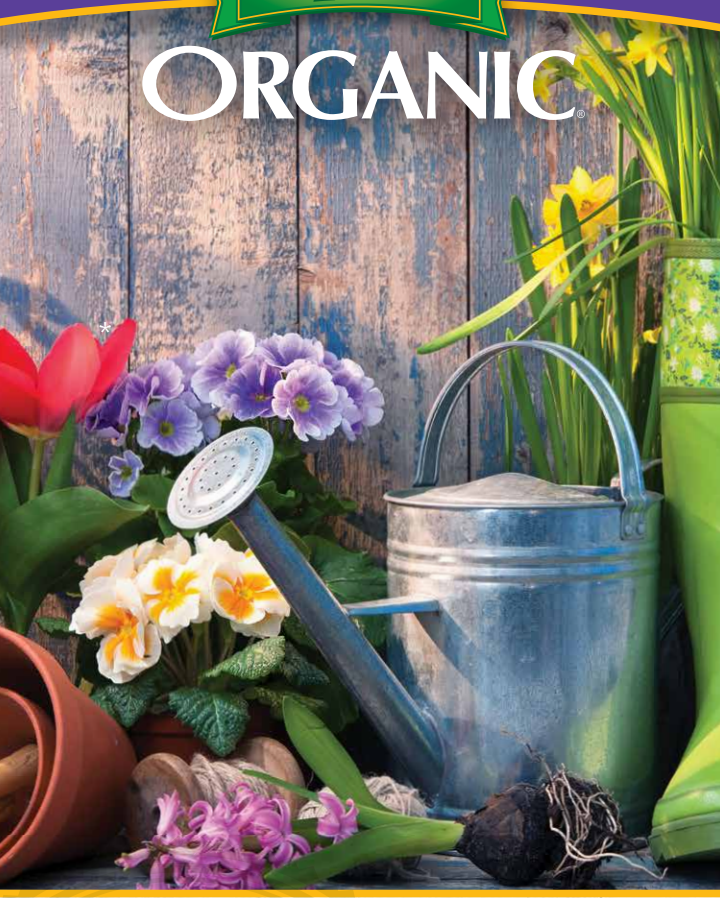

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