The Build A Soil Bible: An In-Depth Product Guide

Community Sourced Product Info

| General Product Entry Structure

Product Name

Ingredients:

- Lorem ipsum dolor sit amet
- consectetur adipiscing elit
- sed do eiusmod tempor incididunt
- ut labore et dolore magna aliqua.

Build A Soil Description:

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Aliquet eget sit amet tellus cras adipiscing. Imperdiet nulla malesuada pellentesque elit eget gravida cum. Semper risus in hendrerit gravida rutrum quisque non. Imperdiet nulla malesuada pellentesque elit eget gravida cum sociis. Rutrum quisque non tellus orci ac auctor augue. Velit aliquet sagittis id consectetur purus ut. Sed elementum tempus egestas sed sed risus pretium. In ante metus dictum at.

Usage:

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Aliquet eget sit amet tellus cras adipiscing.

Research:

- Link
- Link
- link

Notes From Growers:

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Aliquet eget sit amet tellus cras adipiscing. Imperdiet nulla malesuada pellentesque elit eget gravida cum.

Disclaimer: None of this information is mine, it is a collection of info from around the web.

Good Universal Links

- http://www.stephentvedten.com/ (Tons of IPM info)
- https://growingorganic.com/
- https://buildasoil.com/ (Of Course)
- https://dutch-passion.com/en/blog/a-visual-guide-to-cannabis-deficiencies-n987 (Solid Nutrient Issue trouble shooting),

A

Absolute Acid 0-0-1

Ingredients:

- Weak acids from the hydroxycarboxylic family
- 0-0-1 (N-P-K)
- 1% Urea Nitrogen

Build A Soil Description:

Absolute Acid is a complex of weak acids from the hydroxycarboxylic family. These weak acids are complexed to improve water penetration. Absolute Acid is not designed to treat every drop of water, like most other "strong" acids on the market. Instead, Absolute Acid is designed to prepare our soils to accept the marginal water quality that we experience today.

Absolute Acid will react with soil calcium and convert it into a form that is five times more "nutrient available" and also support an "exchange reaction" when compared to gypsum

Salts management can be achieved through the use of low frequent rates of Absolute Acid. The critical salts that are often found at near toxic or toxic levels include chloride, sodium, carbonates, bicarbonates, and sulfates. Many other nutrients such as calcium, magnesium, potassium, phosphorous, and other micro-nutrients are found to be imbalanced.

Features:

Non-corrosive material
Carbon based acids
Contains amine
Converts Calcium
Extremely safe material for employees, irrigation systems and components

Benefits:

Used to prevent mineral scaling and corrosion in irrigation systems Ideal for continuous injection at low economic rates
Converts calcium to plant available forms
Solubilizes risk salts for successful salt management programs
Aid in water penetration with complexed weak acids
Supports chelating activity
Converts other nutrients to plant available forms
Biodegradable
Safely degrades to minerals, CO2, and water
Residual activity in soils will prevent salts from re-forming compounds
such as calcium phosphate in western soils

Usage:

Used primarily to rectify salt issues in soil

Container Application:

60-120 ml per 1-gallon of water

Soil Application:

1-4 quarts per acre,

Soil Application Weekly:

3/4-1 quart per acre/week

*Rates may vary based on conditions and application

Research:

Unable to find research

• https://ferticellusa.com/absolute-acid/ (Website for product)

Notes From Growers:

Anyone?

Active 10-3-10

Ingredients:

- Total Nitrogen (N): 10%
- 0.25% Ammoniacal Nitrogen
- 9.75% Other Water Soluble Nitrogen
- Available Phosphate (P2O5): 3%
- Soluble Potash (K2O): 10%

Derived From:

• Soy Protein Hydrolysate, Rock Phosphate, and Potassium Sulfate

Build A Soil Description:

Organic Potassium Fertilizer with Natural Nitrogen for Plants

10-3-10 offers the grower a unique opportunity to apply a plant available nitrogen and organic potassium dry fertilizer. This allows organic growers to fine-tune their fertilization plan, a flexibility previously enjoyed mostly by conventional farmers.

Active[™] 10-3-10 has 10% of sulfate of potash, a material known in organics to provide plants with greater resistance to weather and disease, as well as promote color development and increase fruit yields. Sulfate of potash is a fast-acting beneficial potassium source, rounding out the macronutrients in this plant available macronutrient package. Active 10-3-10's plant-derived N content helps the phosphorus and potassium to be readily assimilated by

plants, providing a healthy, controllable application of nutrients, just when they are needed most

General:

To support fruit sizing and increased sugar formation Natural chelation affects from 10% soy protein Consistent, dry powder formula Compatible with many herbicides and most fertilizers User-friendly, safe for handling Incredible surface area once in suspension

Usage:

Use at the rate of 1 Tsp - 1 Tbsp Per gallon of water 1 -4 lbs./acre.

Research:

- https://ferticellusa.com/active-organic-10-3-10/ (Website)
- https://www.frontiersin.org/articles/10.3389/fpls.2017.02202/full (Biostimulant Action of Protein Hydrolysates: Unraveling Their Effects on Plant Physiology and Microbiome)
- No good studies on Potassium Sulfate and plants

Notes From Growers:

Anyone?

Active 2-20-10

Ingredients:

- Total Nitrogen (N): 2%
- 0.25% Ammoniacal Nitrogen
- 1.75% Other Water Soluble Nitrogen
- Available Phosphate (P2O5): 20%
- Soluble Potash (K2O): 2%

Derived From:

• Soy Protein Hydrolysate, Rock Phosphate, and Potassium Sulfate

Build A Soil Description:

Dry powder organic phosphorus fertilizer that delivers micronized organic phosphorus with additional potassium and nitrogen that is provided by soy protein.

General:

Highly refined dry powder organic phosphorus fertilizer for improved uptake

Natural <u>chelation</u> effects from soy protein Consistent, dry powder formula Compatible with many herbicides and most fertilizers User-friendly, safe for handling Incredible surface area once in suspension 4% of N & K for added nutritional value

Usage:

2-6 lbs./acre. Use at the rate of 1 Tsp - 1 Tbsp Per gallon of water

Research:

- https://ferticellusa.com/active-organic-2-20-2/ (Website)
- https://www.frontiersin.org/articles/10.3389/fpls.2017.02202/full (Biostimulant Action of Protein Hydrolysates: Unraveling Their Effects on Plant Physiology and Microbiome)
- No good studies on Potassium Sulfate and plants

Notes From Growers:

Customer Review: Anon: "The High P Low N-K ratio is perfect for seedlings & freshly rooted clones, it gives that rootzone a good head start..., especially when combined with some Zinc Aminochelate."

Anon: "This stuff definitely does amazing Things! Every time I use it my plants go nuts over night with very noticeable new growth and phenomenal strech with stacking as I'm in my first couple weeks of flower"

Active 5-10-10

Ingredients:

- Total Nitrogen (N): 5%
- 0.12% Ammoniacal Nitrogen
- 4.88% Other Water Soluble Nitrogen
- Available Phosphate (P2O5): 10%
- Soluble Potash (K2O): 10%

Derived From:

• Soy Protein Hydrolysate, Rock Phosphate, and Potassium Sulfate

Build A Soil Description:

5-10-10 is a perfect balance of organic NPK that delivers a blend of all three macronutrients in a grower friendly, dry powder fertilizer throughout the season. With additional phosphorus and potassium, they are accelerated in nutrient use efficiency by the 5% nitrogen that is provided by soy protein. Foliar applications can boost energy during vegetative and can help any crop finish strong during flower/fruiting through this balanced NPK fertilizer.

5-10-10 is a dry powder organic NPK fertilizer that has a 10% content of phosphorus, micronized to under 1 micron, and a 10% SOP content, a material known in organics to provide plants with greater resistance to weather and disease, as well as promote color development and increase fruit yields. Sulfate of potash is a fast-acting beneficial potassium source, rounding out the macronutrients in this plant available balanced NPK fertilizer.

General:

Highly refined dry powder phosphorus & SOP
Active™ 5-10-10 is balanced for flowering and fruit set
Natural chelation affects from 5% soy protein
Consistent, dry powder formula
Compatible with many herbicides and most fertilizers
User-friendly, safe for handling
Incredible surface area once in suspension
Most balanced organic NPK for crop production

Usage:

2-6 lbs./acre.

Use at the rate of 1 Tsp - 1 Tbsp Per gallon of water

Research:

- https://www.frontiersin.org/articles/10.3389/fpls.2017.02202/full (Biostimulant Action of Protein Hydrolysates: Unraveling Their Effects on Plant Physiology and Microbiome)
- No good studies on Potassium Sulfate and plants
- https://ferticellusa.com/active-organic-5-10-10/ (Website)

Notes From Growers:

Reviews: Anon "This product has a 1:4 ratio. Nitrogen: Minerals. It's being used in it's entirely from seedlings, vegatation, and fruiting phases."

<u> Agsil16H Potassium Silicate</u>

Ingredients:

- Potassium Silicate
- 0-0-32 (N-P-K)
- Guaranteed 32% Soluble Potash (K₂O)

Build A Soil Description:

Manufactured by PQ corporation and is one of the few silica products on the market that is water soluble. This simple powder will save money over buying water-based Silica Bottle products. This is approved for organic use as a foliar spray and is an excellent oil emulsifier.

Silica can increase stress resistance, boost photosynthesis and chlorophyll content, improve drought resistance, salt tolerance, and soil fertility, and prevent lodging. It can also reduce insect pressure, frost damage, and destructive disease while lowering irrigation rates, neutralizing heavy metal toxicity, and countering the negative effects of excess sodium.

Other Info:

Silica can provide several benefits for your plants. However, the most notable benefit is cell wall strength.

Basically, silica fortifies cells from the inside out. Being the building blocks of a plant's structure, strengthening the cell walls helps the plant build

strong branches and stems that are capable of supporting your fruit or flower when it fully develops.

Not only do thicker stems support your plants, but they can also uptake and transport more water, nutrients, and plant secretions throughout the plant body, facilitating faster growth and of course, bigger plants. And that's not all.

Just like humans take vitamins to get nutrients our bodies may not produce, silica acts like a vitamin for your plants. It can help your plants fight off environmental challenges like hot or cold temperatures. Silica also helps prevent your plants from drying out more quickly because of how it thickens cell walls, decreasing transpiration.

Usage:

Dry Recipe

Use 1.5 Grams (Just under 1/2 teaspoon) Per Gallon of Water for Foliar Spray or Soil Drench.

How to use this powder dry with your Neem Oil: Mix 1.5 grams (Just under 1/2 Teaspoon) AgSil 16H with 1/2 Ounce Ahimsa Pure Neem Oil to emulsify the oil. Then mix this emulsified oil with one-gallon final volume spray solution. Spray every other week covering all plant surfaces (top and bottom of leaves) until it runs off.

Liquid Recipe

Use 3 Tablespoons of Agsil16H for every 8 ounces of water.

1 Liter of Liquid Solution you would mix 148 Grams of Agsil16H into 1 Liter of water. Then you can store it in a bottle or jar and shake well before using. (1 Liter of water is about 34 Ounces)

Use the Liquid Solution at 1/4 to 1/2 teaspoon per gallon. Yes, it's safe to use on every single watering, but we don't do that because we don't feel it's required with ANY ingredient

Foliar

Use 1/2 teaspoon of the solution per gallon to foliar spray.

(I've used 2-3 Teaspoons per gallon without ill effects, but encourage you to start slow and see what you think)

Research:

- https://cdn.shopify.com/s/files/1/0248/9641/files/sds AgSil 16H Potassium Silicate.pdf?58 (AgSil Breakdown)
- https://www.thcfarmer.com/threads/plant-available-silicon-soluble-silicon-in-fertilizer-sources-aafpco-approved-method.76318/
- https://www.thcfarmer.com/threads/the-benefits-of-potassium-silicate.23624/ (General Benefits, also has references to other silica info)
- https://academic.oup.com/aob/article/100/7/1383/216204 (Silica in Plants: Biological, Biochemical and Chemical Studies)
- https://d1wqtxts1xzle7.cloudfront.net/47566213/Silicon use for pe st control in agricult20160727-1093-ky9bm1-with-cover-page-v2.p df?Expires=1663357692&Signature=C5VQEmTZbJpVbIAQYCoRUiO o6~VkC391UtBHmlSckjx82Zssqi4NZN~7tADy4oxulF~8ZCVCC7i4~ ~reVijyhDiWkGbYV2F7HATLWTRHbAxXBDiAHR2o83PIYn6pTC38 yfDg1ofOYSFSa1o~ApV8kTKSdC-Ko99lp5khD3Pqm558bzHBxg-518i rYsr-bCTXQWDXL3jOrHSOGKz4joArgBmZS5tikfInPKbxwFPLAfiog pcAZ2XkjdMcuxbtARHGPVRAPq4zdsK~QuJketxM-7vO9kZwFWU-VtkFAipXyUEPu5S3BB~evQLMIl956Qp49WXUJUKs2npvGYuCo~e WnQ &Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA (Silicon use for pest control in agriculture: A review)

Notes From Growers:

Add something

Alfalfa Meal Organic

Ingredients:

- Milled Organic Alfalfa
- 3-1-2 ratio (N-P-K)

o Contains high amounts of:

Vitamins		
Carotene	Vitamin A	Choline

Vitamin B	Vitamin E	Niacin
Thiamine	Riboflavin	Biotin
Pantothenic Acid	Folic Acid	
Minerals		
Potassium	Magnesium	Selenium
Sulphur	Manganese	Iron
Plus 16 Amino Acids	Triacontanol, growth hormone	

Build A Soil Description:

Alfalfa Meal is an all-natural fertilizer made from ground up alfalfa plants. It's great at replenishing worn-out soils when used as a soil amendment. It can also be used as an accelerant in compost piles.

AM can help restore soil and bring back its full growth potential. With a unique 3-1-2 ratio, Alfalfa Meal is an all-natural, organic fertilizer that replenishes sugar, starches, and proteins that help keep your plants growing healthy, and strong.

AM works as an organic fertilizer utilizing micro bacteria to break down and produce heat that accelerates the decomposition of minerals within the meal. Rhizobacteria activity processes the nutrients further, making them more readily available for use by the plant. Using Alfalfa Meal is easy, it provides an alternative to other organic fertilizers such as blood meal or compost that may contain excessive amounts of nitrogen for more delicate plants.

Other info:

Minerals: Along with high nitrogen content, alfalfa is filled with plenty of other beneficial garden minerals, including iron, zinc, potassium, calcium, magnesium, phosphorus, and others.

Adds Nitrogen: An amazing talent of the alfalfa plant is that it can take nitrogen out of the air and hold it in its roots as a nitrogen-fixing technique to make that nitrogen available in the soil for nearby garden plants.

Growth Hormone: Alfalfa contains triacontanol, a hormone that stimulates the growth of plant roots, enhances photosynthesis, and increases beneficial microbes which help to suppress many soil-borne diseases.

Builds Up the Soil: The high nitrogen content in alfalfa makes it easy for surrounding organic material to decompose. This helps prevent compaction in the garden by improving soil structure and acting like a sponge to absorb excess moisture and help prevent erosion.

Helps Resist Drought: Adding alfalfa to the soil increases its sponge-like tendencies. Therefore, making it easier for water to be absorbed and held in the soil, even during times of drought.

Encourages Growth: Within alfalfa is a substance called triacontanol is a hormone that stimulates plants to grow better roots and increase photosynthesis, which leads to stronger, larger garden plants.

<u>Controls Harmful Nematodes</u>: Some studies have shown that the use of alfalfa pellets in gardens can reduce the infestation of root-knot nematodes that attack tomato plants, thereby helping you get a bigger harvest.

Provides Food For Microorganisms: Everything living in your soil loves alfalfa. This is because of its tasty nutrients, meaning an infusion of alfalfa will help beneficial microbes and worms to thrive.

Usage:

Direct Usage:

Potting Soil:

1/4 - 1/2 Cup Per Cubic Foot. (Cubic foot is about 7.5 gallons of soil)

Light Application:

12 lbs per 1,000 square feet, 1/4 cup per plant or 1 lb per 20 ft row

Normal Application:

25 lbs per 1,000 square feet, 1/3 cup per plant or 2 lb per 20 ft row

Heavy Application:

50 lbs per 1,000 square feet, 1/2 cup per plant or 3 lb per 20 ft row

You can apply alfalfa to the garden at any time of the year. However, the best results occur when you add it to the soil in the fall or spring when nothing is actively growing.

Because alfalfa is an alkaline substance, it works best when you use it only on plants that don't like acidic soil.

Tea: (Use the recipe you have materials for)

Recipe 1:

Alfalfa meal makes a great foliar spray when you brew it into a tea. Simply mix 5 gallons of water with 1 cup of alfalfa meal and add a few tablespoons of <u>LABS</u> or <u>EM1</u>. Let the mixture sit for 24 hours, stirring on occasion, then strain and use as a root drench or foliar spray.

Recipe 2:

5 Gallon Bucket With Water

1-2 Cups Alfalfa Meal

2 Tablespoons Kelp Meal

2 Tablespoons Molasses

Bubble for 12-24 hours, strain and serve.

This "Nutrient Tea" is all you need for vigorous vegetative growth boosts. Use once per week.

Recipe 3:

4 cups Alfalfa to 5 gallons of water

If you wish to add some extra magnesium content - Add 1 cup of Epsom salt to the 5-gallon bucket as well. Epsom salt breaks down into magnesium and sulfur, both of which are beneficial to plants.

Mix well in a bucket and put on a lid. Stir at least once or twice per day and let it steep for seven days. This allows the mixture to ferment and develop beneficial bacteria.

Alfalfa tea for plants can be used on a weekly basis as a good fertilizer. You can use it as a foliar spray or a soil drench, as preferred

Research:

- https://www2.ipm.ucanr.edu/agriculture/alfalfa/nematodes/ (Alfalfa and Nematodes)
- https://www2.ipm.ucanr.edu/agriculture/alfalfa/ (General Info)
- https://www.tandfonline.com/doi/abs/10.1577/A05-016.1 (Effects of Rice Bran, Cottonseed Meal, and Alfalfa Meal on pH and Zooplankton)
- https://cdnsciencepub.com/doi/full/10.1139/cjss-2019-0056
 (Nitrogen release from five organic fertilizers commonly used in greenhouse organic horticulture with contrasting effects on bacterial communities)
- https://mountainscholar.org/bitstream/handle/10217/88616/Yoder_colostate_0053N_12744.pdf;sequence=1 (Effects of organic fertilizers on Kale growth)

Notes From Growers:

Have a compost pile that just isn't working? Add a few scoops of alfalfa meal to the center and watch it heat up in no time!

For fertilizing lawns, alfalfa pellets tend to work better than a meal because it's heavier and less likely to blow away.

Store in solid containers as mice and other small animals would love to snack on the nutritious alfalfa you have brought close to their home.

<u>Alfalfa Fermented Plant Extract (Growing Organic)</u>

Ingredients:

- Water
- Organic Molasses
- Organic Alfalfa
- Lactic Acid Bacteria

Build A Soil Description:

This Fermented Plant Extract is made by Growing Organic on their family farm. It's made with love in small batches by growers for growers. The

attention to detail and phenomenal quality of fermentation has me really excited to share these products.

General:

Alfalfa is high in saponin and this ferment is soapy and sweet and beautiful in color. When you open this bottle you'll be wanting to use it 100% and this is a great one to try if you are concerned about odors from other ferments.

Fermented with lactic acid bacteria (LAB) and molasses to break down the plant fibers making the nutrients and beneficial properties they contain more accessible for your garden plants.

Usage:

Use 1 oz - 4 oz of ferment per gallon of water. It can be used as a drench or foliar application.

Research:

• https://growingorganic.com/shopping/product/alfalfa-fermented-plant-extract/ (Product Website)

Notes From Growers:

Anyone?

Alfalfa Seed

Ingredients:

Alfalfa Seeds

Build A Soil Description:

These Organic Alfalfa seeds are specifically cleaned and ready for sprouting.

Once sprouted the Enzymes are a catalyst that assists the other nutrients and helps supercharge your soil. Making alfalfa tea, often known as seed tea, is a great and cheap way to give your plants something extra. These alfalfa seeds can be planted to grow alfalfa just the same as being used for our special seed tea.

Usage:

Tea:

28 Grams Alfalfa Seed (1 Ounce) Soak for 8 hours with Clean Water Should now weigh a minimum of 42 Grams (If not soak longer)

Sprout seeds until the tail is as long as the seed or about 1-2 days.

Blend in a food blender or whatever you have with a little bit of water to help it blend.

Add this to 5 gallons of water

Research:

- https://www.tandfonline.com/doi/full/10.1080/17429145.2011.6192
 81 (Triacontanol: a potent plant growth regulator in agriculture)
- https://www.tandfonline.com/doi/full/10.1080/17429141003647137 (Stimulation of crop productivity, photosynthesis and artemisinin production in Artemisia annua L. by triacontanol and gibberellic acid application)
- https://www.queenofthesungrown.com/post/enzyme-tea (Blog post about enzymes)

Notes From Growers:

"You can read a lot about the alfalfa compound (auxin) Triacontanol which is found in alfalfa meal. What gets lost in the discussion is that the sprouting alfalfa's production of this auxin is at its maximum meaning, go gently into that good night if you choose to sprout alfalfa seeds. Start with 1/2 the amount you would with most other seeds." -Clackamas Coot

Aloe (BuildASoil Horticultural)

Ingredients:

• 100% aloe vera powder

Build A Soil Description:

Key Points:

The Lignin's in Aloe Vera allows the plants to utilize the nutrient and moisture supply more efficiently with less stress on the plant. Plants grow healthier, larger, and greener due to the plant's ability to better use the UV rays from the sun allowing photosynthesis to take place more efficiently.

Does not alter the genetic makeup of the plant.

Organically grown product.

Proven and documented by Texas A&M.

"The new aloe vera stabilization process is critical to obtain the result listed here. The first patent I was awarded was the hand filleted method. The rind was discarded and only the fillet was used. After 38 years it was discovered that a large percentage of the actives in the aloe vera plant were being thrown away with the rind. In 1962 I developed and patented the whole leaf method to stabilize the gel. Clinical studies showed this process to be superior to the hand filleted method of processing.

In 1984, I received a third patent to process aloe vera to create a product to stimulate plant growth by processing the aloe vera leaves differently. It should be noted that this whole leaf aloe vera product can not be consumed orally. It is for plants only."

Usage:

Must wear rubber gloves when handling the freeze-dried powder and the concentrated liquid made from the powder due to the laxative effect. It is not necessary once the product is diluted to a solution.

1 Ounce makes 10-25 Gallons of Potent Foliar Spray.

Horticultural Use

1 tsp per gallon 100 gr per 33 gallons 1 kg per 330 gallons

Seed soak for 4-12 hours Plant cutting soak for 4-12 hour Foliar spray in the morning before full sun

Acreage Use

1 kg will treat 2.5 acres with 4 full sprays 100 gr per 33 gallons water foliar 1-acre

Research:

• Can't find Texas A&M study

Notes From Growers:

Reviews:

Aloe Vera Powder 200x Flakes

Ingredients:

• Aloe Vera Powder

Build A Soil Description:

Aloe Vera 200X Powder is carefully processed from the inner fillet of the aloe leaf. Care is taken to minimize disruption of the Aloin layer, which is then stripped. Further processed to remove pulp and fiber, the aloe gel is pasteurized and concentrated utilizing low-temperature evaporation. The gel is then freeze-dried to produce a product without additional additives or preservatives. Freeze drying prevents the breakdown of the great majority of the long-chain polysaccharides found in the fresh leaf, making this an exceptional product for cosmetic and nutraceutical applications. The Aloin content in this product is certified to be less than 0.1 ppm when reconstituted to 1X strength.

Aloe has two main properties that we are interested in for growing plants.

Salicylic Acid: This makes this dry powder excellent for cloning! Willow root isn't even as good. Aloe vera contains Salicylic acid which is an aspirin-like compound with anti-inflammatory, analgesic, and anti-bacterial properties.

Saponins: Another constituent of Aloe vera includes saponins. These are soapy substances from the gel that is capable of cleansing and having antiseptic properties. The saponins perform strongly as anti-microbial against bacteria, viruses, fungi, and yeasts

Usage:

NOTICE: ONLY MAKE WHAT YOU CAN USE THE SAME DAY. There aren't any preservatives and the best use is only for immediate consumption.

For Watering or Foliar Spraying Plants:

1 Gallon Water = Mix 1/2 Teaspoon Aloe Vera Powder 50 Gallons Water = Mix 1-4 tablespoons Aloe Vera Powder

Notice: Aloe Vera Powder may need to sit in water for 10 Minutes to properly dissolve and activate the properties to maximum benefit. If your aloe won't mix in water, just come back in 10 minutes and stir. Specific Uses:

During Cloning as a powerful rooting stimulator During any phase of plant growth as a natural plant immunity builder For Use in Foliar Spray as a mild wetting agent and plant tonic.

Research:

- https://www.researchgate.net/file.PostFileLoader.html?id=56abo86
 35e9d97bae58b4569&assetKey=AS%3A323120668315649%4014540
 49379002 (Role of Salicylic Acid in plants pdf)
- https://academic.oup.com/jxb/article/62/10/3321/479369 (Salicylic acid beyond defence: its role in plant growth and development)
- https://link.springer.com/article/10.1186/s12864-018-4819-2 (De novo sequencing, assembly and characterization of Aloe vera transcriptome and analysis of expression profiles of genes related to saponin and anthraquinone metabolism)

Notes From Growers:

Anyone?

Aluminum Sulfate

Ingredients:

• Aluminum Sulfate

Build A Soil Description:

N/A

Other Info:

Generally used for water purification and PH adjustment When added to water, it causes microscopic impurities to clump together into larger and larger particles. These clumps of impurities will then settle to the bottom of the container or at least get large enough to filter them out of the water. This makes the water safer to drink. On the same principle, aluminum sulfate is also sometimes used in swimming pools to decrease the cloudiness of the water.

Usage:

Trouble finding usage info, generally used in a system at roughly 28 ppm.

Research:

• https://krohne.com/en/applications/dosing-of-aluminium-sulphate-in-potable-water-treatment (Usage help)

Notes From Growers:

Anyone?

<u>Azomite</u>

Ingredients:

- Micronized Azomite
- Soluble Potash (K2O) 0.2%
- Calcium (Ca) 1.8%
- Chlorine (Cl) 0.1%
- Sodium (Na) 0.1%

Build A Soil Description:

Azomite is a natural product mined from an ancient mineral deposit in Utah (USA) that typically contains a broad spectrum of over 70 minerals and trace elements, distinct from any mineral deposit in the world. Azomite is used internationally as a feed additive and a soil re-mineralizer for plants and is available in over thirty countries throughout the world.

Azomite Micronized is an ultra-fine powder (-200 mesh) excellent for coating seeds for maximum germination and initial growth.

General:

Micronized natural trace minerals Re-mineralizes soil for optimum growth Improves root systems, yields, and plant health All purpose natural nutrient for organic use For all soil types

Usage:

Field Crop

Recommended initial application is 75 - 150 pounds per acre, followed by an annual maintenance level of half the original application. Certain high-value crops or crops that have undergone stress may warrant higher, up to double the application rate. 30 pounds per acre is suggested for use in starter fertilizers placed near the seed line.

Vegetable

1/4 cup per plant. For larger areas, we recommend two 44 lb bags per acre (based on rows approximately 18" apart with plants 12" apart). If the bed is established, sprinkle around each plant. It should be applied with compost, humus, manures, or other fertilizers to provide additional levels of nitrogen, phosphorus, and potassium. It will not burn plants. For houseplants, mix 1 teaspoon per 2-inch pot diameter with potting soil before planting. Give 1 teaspoon quarterly thereafter. For roses, start with 1/4 lb. to the soil around each plant and lightly till into the soil.

Small Fruit

Apply annually to all trees on the ground surface under the drip line at the rate of 1 to 5 pounds, depending on the tree size. Double the application for declined or blight-stricken trees. For grapes, apply 1/2 lb. to 1 lb. to the soil around each plant and lightly till into the soil.

Viticulture

Apply annually to all trees on the ground surface under the drip line at the rate of 1 to 5 pounds, depending on the tree size. Double the application for declined or blight-stricken trees. For grapes, apply 1/2 lb. to 1 lb. to the soil around each plant and lightly till into the soil.

Arboriculture

Apply annually to all trees on the ground surface under the drip line at the rate of 1 to 5 pounds, depending on the tree size. Double the application for declined or blight-stricken trees.

Home Lawn and Garden / Nursery Stock and Greenhouse A 44-pound bag will cover 12,000 to 15,000 square feet. Broadcast and then water. Apply up to 4 times per year.

Research:

- https://onlinelibrary.wiley.com/doi/full/10.1111/grs.12309 (Growth response of alfalfa to Azomite composite micronutrient fertilizer on four lime-amended Virginia soils)
- https://www.domyown.com/azomite-micro-soil-amendment-p-17417 <a h

Notes From Growers:

Anyone?

B

Barley (Organic Sprouted)

Ingredients:

• Barley Seed

Build A Soil Description:

Sprouting Barley will add a tremendous amount of synergy with your existing nutrient program. Barley sprouting for a soil tea comes highly recommended

General:

6 ounces of seed per cup.

Enzymes are a catalyst that assists the other nutrients and helps supercharge your soil.

Usage:

5 gallons recipe

56 Grams Barley Seed (2 Ounces) Soak for 8 hours with Clean Water Should now weigh a minimum of 84 Grams (If not soak longer)

Sprout seeds until the tail is as long as the seed or about 1-2 days.

Blend in a food blender or whatever you have with a little bit of water to help it blend.

Add this to 5 gallons of water

Research:

• https://www.queenofthesungrown.com/post/enzyme-tea (Blog post about enzymes)

Notes From Growers:

Anyone?

Barley Straw Mulch

Ingredients:

• Barley straw, may contain seeds

Build A Soil Description:

This barley straw is not certified organic but comes from a local farm. There isn't a need to spray for pests and most of the local farms use chicken manure as the cheapest means to fertilize etc. There will be some foreign dried plant material as there always is with any straw bales.

Usage:

Top dress your containers for a sweet barley straw mulch layer 1-2 inches thick

Research:

• https://www.epicgardening.com/straw-mulch/ (General info)

Notes From Growers:

Gret for trapping moisture in dry climates

Basalt

Ingredients:

Basalt

Build A Soil Description:

Basalt rock dust is packed with micronutrients like magnesium, iron, and calcium. These nutrients assist with root growth and drive bigger yields organically making it an ideal soil amendment.

Will not affect PH and is NOT a liming agent Will add paramagnetic energy and essential trace elements

Usage:

Use Rates for Basalt Rock Dust:

Garden Beds - 5lb. To 10lb. Per 100 Square Feet of Soil (10' x 10' area) Potted Plants – 1/4 to 1/2 CupPper Gallon Of Soil

Trees & Shrubs – 1 to 3 cups Spread Around The Tree Base & Watered In Lawns – 3lb. To 5lb. Per 100 Square Feet of Lawn

No-till Cannabis Plants – $\frac{1}{4}$ to $\frac{3}{4}$ of a Cup Per 15 gallons of Soil After Each Cycle

Research:

• https://geologyscience.com/rocks/basalt/ (General info)

Notes From Growers:

Anyone?

Basalt (Blue Ridge Meta-Basalt)

Ingredients:

Metabasalt

Build A Soil Description:

Volcanic Meta-basalt rock dust. Proven field performance. The preferred material for the most comprehensive scientific study ever performed documenting the "Enhanced Weathering" effects on agronomic energy crops.

The best for mineralization. Majors in excellent proportion. Important transition metals are in abundance. Strong magnetic field response. Perfect gradation for broadcast applications, direct to ground or composting.

Usage:

Anyone?

Research:

• https://www.agrojournal.org/28/03-17.pdf (Agronomic performance of maize crop in response to the application of metabasalt powder rates)

Notes From Growers:

Anyone?

Basalt BrixBlend

Ingredients:

- Lorem ipsum dolor sit amet
- consectetur adipiscing elit
- sed do eiusmod tempor incididunt

• ut labore et dolore magna aliqua.

Build A Soil Description:

BrixBlend: The Gold Standard of Rock Dust for Remineralization. All-purpose paramagnetic rock dust from the Pioneer Valley. Perfect for direct-to-ground applications in gardens, raised beds, orchards, lawns, ornamentals, soil or soil-less mixes, and composting. Pioneer Valley BrixBlend Basalt has been approved by Baystate Organics and Vermont Organic Farms for organic production. USDA National Organic Program Standards compliant.

Microfine: The Basalt Microfines is the BEST paramagnetic regional rock dust for remineralization in a stone flour gradation. Works in fruit and vegetables, turf, forestry, greenhouse, and for remineralizing compost. This rock dust may be incorporated directly into growing media or suspended in liquid for fertigation, drenches, watering house plants, etc. May be incorporated into potting soils up to 5% by volume. Will not burn plants. Please use caution when handling this powder to avoid respiratory inhalation. Instructions are in the box.

Usage:

BrixBlend:

For optimum results use between 5-50 lbs./ 100 sq. ft. in tillage 5-25 lbs./ 100 sq. ft. top dressing.

Fortifying compost use 20-25 lbs./ cu. yd. of biomass raw material. For potting mixes use up to 5% by volume.

Microfine:

Between 5-25 lbs/ 100 sq. ft in tillage or incorporation or spread on the surface. Use higher rates in tillage.

In solution up to 1/2 lb./ gal. Agitate to keep particles in suspension. For house plants spread a thin layer on the surface of the soil and water in. For compost use up to 25 lbs. per cubic yard of compost raw material.

Research:

• See other basalt entries

Notes From Growers:

Anyone?

Base Blend (Soil)

Ingredients:

- Canadian Sphagnum Peat Moss
- Pumice 3/8" x 1/4"
- Rice Hulls
- Mustard Seed Meal
- BuildASoil #1 Worm Castings

Build A Soil Description:

This potting soil is the perfect affordable soil for almost any purpose.

Use it for houseplants, vegetables, seedlings, really anything! It works for everything because it's so low on sodium, chloride, and bicarbonates and the PH is balanced enough that almost all plants will love it.

Many growers really want to mix their own super soil and need a good base potting soil to start with. This allows any grower to use their favorite amendments to make their own premium soil.

Alternatively, this soil is also perfect for people that use organic nutrients or hydro style and want to use a good base potting soil to start with.

Whatever you use it for, it's cost-effective and made from the best stuff. All ingredients have been tested for heavy metals and we are proud of this base recipe.

Usage:

That's it! You add the rest or just use it as is.

We recommend adding 2-4 cups of Craft Blend per cubic foot to make a super soil or you can make your own recipe up.

We recommend adding 1-2 cups of organic amendments per cubic foot along with 2-4 cups of rock dust and minerals per cubic foot of soil.

(Cubic foot is about 7.5 gallons of soil)

Research:

N/A

Notes From Growers:

Anyone?

Beauveria Bassiana Powder

Ingredients:

- Beauveria Bassiana Plant Isolate THIS IS NOT HF23 We offer a multiple strain mixture all isolated from plants. (Beans).
- Organic Graphite/Talc This is the carrier powder for the microbes. This carrier also acts to help flow in seed machines.

Build A Soil Description:

Excellent for seed starts or transplants. For water-soluble mid-season application check out our Water Soluble Version.

This is not your ordinary Beauvaria! We found a USA-made strain and a manufacturer that we love. Potent formula saves money while using less.

BuildASoil Beauveria Bassiana Plus Powder is a PLANT SYMBIONT. This works incredibly well along with Rootwise Mycrobe complete.

General:

Stimulation of immune system
Restricts plant pathogens from entering the plant
Interacts with the plant to produce additive biochemicals
Combines plant resistance to insect feeders for reducing population threat
Naturally occurs in soil but may have been killed off by fungicides and/or
tillage

Usage:

For best results, apply as a seed treatment or when transplanting. The sooner the better.

Not harmful if over-applied, but can be a waste.

Approximately 3 grams per teaspoon

1/16 Teaspoon per plant seedling (0.2 grams)
1/8 Teaspoon per mature plant (0.4 grams)
Ideal to use in planting hole or mixed in with seeds before planting.

1 Gram Per Cubic Yard Potting Soil 2 ounces Per Acre

Treated Plants:

- 2 Ounce bag treats 140+ plants or 1 acre of seeds.
- 8 Ounce treats 560+ plants or 4 acres of seeds.
- 1 Pound treats 1020+ plants or 8 acres of seeds.

Research:

- https://lpcnaturals.com/beauveria-bassiana/ (What is BB)
- https://www.linkedin.com/pulse/probiotics-plants-beauveria-bassia na-safe-friendly-future-rushton/ (Probiotic for plants)
- https://www.sciencedirect.com/topics/immunology-and-microbiology/beauveria-bassiana (Brief info)
- https://portal.nifa.usda.gov/web/crisprojectpages/0193498-beauveri-a-bassiana-a-dual-biocontrol-against-plant-pathogens-and-insect-pes-ts.html (BEAUVERIA BASSIANA, A DUAL BIOCONTROL AGAINST PLANT PATHOGENS AND INSECT PESTS)

Notes From Growers:

Anyone?

Beauveria Bassiana Water-Soluble

Ingredients:

- Active Ingredient: Beauveria bassiana 1.1%
- Carrier: Soy Bean oil (organic simmons) 98.4%

- Carrier: Penetrate 50 (OMRI listed wetting agent/yucca extract) .5%
- Plant Isolate THIS IS NOT HF23 We offer a multiple strain mixture all isolated from plants. (Beans)

Build A Soil Description:

BB-WS with the active ingredient Beauveria bassiana, is a natural, symbiotic fungus that lives in the soil, roots, stems, and leaves. BB-WS grows with the plant!

BuildASoil BB-WS blends food grade and certified organic products with Beauveria bassiana. Many certifiers have determined compliance with organic standards.

General:

Stimulation of immune system
Restricts plant pathogens from entering the plant
Interacts with the plant to produce additive biochemicals
Combines plant resistance to insect feeders for reducing population threat
Naturally occurs in soil but may have been killed off by fungicides and/or
tillage

Usage:

Foliar/Drench

Garden: 1/2 - 1ml per gallon water Potting Soil: 1ml Per Cubic Yard

Acreage: 1 ounce per acre

Research:

- https://lpcnaturals.com/beauveria-bassiana/ (What is BB)
- https://www.linkedin.com/pulse/probiotics-plants-beauveria-bassia na-safe-friendly-future-rushton/ (Probiotic for plants)
- https://www.sciencedirect.com/topics/immunology-and-microbiology/beauveria-bassiana (Brief info)
- https://portal.nifa.usda.gov/web/crisprojectpages/0193498-beauveri a-bassiana-a-dual-biocontrol-against-plant-pathogens-and-insect-pes ts.html (BEAUVERIA BASSIANA, A DUAL BIOCONTROL AGAINST PLANT PATHOGENS AND INSECT PESTS)

Notes From Growers:

Anyone?

Beneficial Insects

Ingredients:

- Rove beetle (Dalotia coriaria)
- Steinernema Feltiae Nematodes
- Stratiolaelaps Scimitus (Hypoaspis Miles)

Build A Soil Description:

See individual insect sections

Usage:

See individual insect sections

Research:

See individual insect sections

Notes From Growers:

Feel free to add here

Big 6 Micronutrients

Ingredients:

- Manganese
- Boron
- Copper
- Zinc
- Cobalt
- Molybdenum

Build A Soil Description:

These 6 Micronutrients are balanced and chelated through Faust Ful-Humix Humic Acid to make sure that we can use safe amounts and they will only help the plants.

Usage:

Seed activation: For vegetable seeds soak 72 hours at 0.5g /gal. For others, soak for 24 hours at the same ratio.

Soil and Container plants: 0.75-1.25g/gal of irrigation solution.

Hydroponic: 0.5-0.75g/gal of nutrient solution used in a reservoir (use with every change. Top-offs can be chared with 1/4-1/2 normal rate).

Foliar Rates: .75g/gal every 7-10 days.

Field Use: 2-4 pounds per acre every 3-6 weeks. Pre-Plant Soil

Conditioning/Bioremediation: 5-10 pounds per acre. 1/4 tsp= 1g 1/2tsp= 2g

To Make a Concentrated Liquid Solution:

- 1. Add 300 grams of Big 6 to one gallon of hot water (110 degrees F) and agitate.
- 2. After 1 hour, all undissolved solids will have settled.
- 3. Apply liquid solution at a rate of slightly less than 1/2 ounce per gallon of water.

*Please note approx 15% is insoluble and can be cast in compost or garden. Exceeding application rates can cause irregular growth. Store dry and away from excessive heat.

Research:

- https://www.taylorfrancis.com/books/mono/10.1201/978148228042
 5/plant-micronutrients-sharma
 (Surface info on micronutrients in plants)
- Manganese General Info
- Boron General Info
- Copper General Info
- Zinc General Info

- Cobalt General Info
- Molybdenum General Info

Notes From Growers:

Anyone?

BioAg CytoPlus

Ingredients:

- Humic Acid 40%
- Soluble Potash 7.5%
- Sulfer 3.25%
- Boron 0.25%
- Cobalt 0.035%
- Copper 0.13%
- Iron 0.9%
- Manganese 0.8%
- Molybdenum 0.05%
- Zinc 0.5%

Build A Soil Description:

Combination of soluble SEAWEED extract from Norway and BioAg TM7 powder. Cytoplus is an excellent source of beneficial organic compounds, seven micronutrients, as well as humic and fulvic acids. Use in a wide variety of applications including dry broadcast for turf and farms, or add to liquid for foliar, hydroponic, irrigation, and hand watered applications. Best used during key transitional periods, such as vegetative to bloom. Great in teas.

General:

Improves efficiency of applied fertilizers

Increases flowering, fruit set, improves soil tilth and increases trace element levels

Increases water holding capacity and CEC of the soil Improves overall plant health and decreases risk of abiotic stress Optimizes plant performance and improves soil conditions For improved crop establishment

Usage:

Soil and Container plants:

1/3 - 1/2 tsp per gallon.

Hydroponic:

1/4 - 1/3 tsp per gallon.

Foliar Rates:

1/4 - 1/3 tsp per gallon.Â

Field Use:

1.5 - 4 ounces per 1,000 square feet, applied every 2-6 weeks throughout the growing season. Blend with dry fertilizers as needed.Â

$$1/4 \text{ tsp} = 1 \text{ gm}$$

*Please note approx 15% is insoluble and can be cast in compost or garden. Exceeding application rates can cause irregular growth. Store dry and away from excessive heat.

Research:

• https://static1.squarespace.com/static/62190097a619d31a497dd774/t/6243ba2d62293b758259e532/1648605743667/BioAg CytoPlus Tech Sheet.pdf (BioAg Product Info)

Notes From Growers:

Anyone?

BioAg Ful-Humix

Ingredients:

- Lorem ipsum dolor sit amet
- consectetur adipiscing elit
- sed do eiusmod tempor incididunt
- ut labore et dolore magna aliqua.

Page 36

Build A Soil Description:

A soluble, concentrated humic powder and powerful soil/nutrient activator. It increases nutrient efficiency and uptake, increases cellular activities at all levels, stimulates beneficial microorganisms and converts raw organic matter and fertilizers into available forms for faster uptake. In the root zone it reduces the uptake of sodium, aluminum and other metals that negatively effect plants. Ful-Humix will also buffer the soil with organic biopolymers, thus preventing tie up of nutrients and trace elements (through chelation and complexing). At BioAg our thoughtful manufacturing methods retain the efficacy of the parent material leading to a high bio-stimulation effect.

General:

Improves nutrient efficiency and uptake
Improves cellular division at all levels
May stimulate beneficial microorganisms
May convert raw organic matter and fertilizers into available forms for faster uptake

Usage:

Seed Soak:

1/4 tsp per gallon; soak tomato seeds 72 hrs, cabbage & squash 48 hrs, potatoes 12 hrs, and most other vegetable seeds 24 hrs before planting. Water seedlings at transplanting with same rate.

Container Gardening Use:

1/8 - 1/4 tsp per gallon every watering.

Hydroponics:

1/8 - 1/4 tsp per gallon of nutrient solution used in reservoir (use with every reservoir change; top-offs can be charged with half to quarter normal rate).

Beds/Lawns (Broadcast):

1-3 ounces per 1,000 square feet applied every 2-6 weeks during growing season.

*Please Note: Insoluble sediment can be composted, used on landscape or in a soil mix. Does not replace fertilizer. Use with fully formulated nutrient(s). Exceeding application rates can cause irregular growth such as twisted leaves.

- https://static1.squarespace.com/static/62190097a619d31a497dd774/ t/623fd6ec66f313090b06dcdb/1648350956880/BioAg Ful-Humix Tech Sheet.pdf (Product Site)
- https://www.frontiersin.org/search?query=humic+acid&tab=top-results (Good starting point)
- https://www.harvestgrow.com/.pdf%20web%20site/Humates%20General%20Info.pdf (ORGANIC MATTER, HUMUS, HUMATE, HUMIC ACID, FULVIC ACID AND HUMIN: THEIR IMPORTANCE IN SOIL FERTILITY AND PLANT HEALTH)

Notes From Growers:

Anyone?

BioAg Ful-Power

Ingredients:

• Hydrophobic Fulvic Acid - 1%

Build A Soil Description:

A superior Fulvic Acid that is preferred by growers because of its EASE OF USE, HIGH BIO-AVAILABILITY and SUPREME CHELATING ACTION. Purified by our revolutionary biological processing method, Ful-Power is a premium fulvic product that is compatible in all systems and all pH's. Ideal for foliar sprays (helping to increase effectiveness of other materials), clones and cuttings, bare-root dip, and seed activation. Also use in hydroponic applications and for biological stimulation. OMRI & OIM LISTED

General:

Can improve nutrient uptake
Will not affect pH or increase EC
Works with all fertilizers and foliar sprays
Will not clog drippers or sprayers
Can be used in all greenhouse and nursery crop systems including aquaponics

Usage:

Use at 20-30 ml per gallon.

Research:

- https://static1.squarespace.com/static/62190097a619d31a497dd774/ https://static1.squarespace.com/static/62190097a619d31a497dd774/ https://static1.squarespace.com/static/62190097a619d31a497dd774/ t/623f04c7fba630262a589bd4/1648297166688/BioAg_Ful-Power_Tech_Sheet.pdf (Tech_Sheet.pdf
- https://www.frontiersin.org/search?query=fulvic+acid&tab=top-results (Good start point)
- https://www.harvestgrow.com/.pdf%20web%20site/Humates%20General%20Info.pdf (ORGANIC MATTER, HUMUS, HUMATE, HUMIC ACID, FULVIC ACID AND HUMIN: THEIR IMPORTANCE IN SOIL FERTILITY AND PLANT HEALTH)

Notes From Growers:

Anyone?

BioAg TM-7

Ingredients:

- Sulfur(S)... 2%
- Copper (Cu)... 0.31%
- Boron (B)... 0.37%
- Iron (FE)... 1.2%
- Cobalt (Co)... 0.05%
- Manganese (Mn)... 1.2%
- Molybdenum (Mo)... 0.1%
- Zinc... 0.7%
- Non-plant food ingredients: Humic 40% & Fulvic 10.5%

Build A Soil Description:

All the power of HumiSolve humic and fulvic acid, plus SEVEN Micronutrients required for plant growth. The natural humic and fulvic acids act as <u>chelating</u> agents and prevent tie-up of the trace elements, as well as supplying natural root-stimulating compounds. Increasing fruit set and quality stimulates soil microbial activity, improves soil tilth, increases trace element levels, and reduces water use. A soluble dry powder for easy

shipping and long-term storage. Use in a wide variety of applications including dry broadcast for turf and farms, or add to liquid for foliar, hydroponic, irrigation, and hand watered applications. Fantastic when used for compost tea activation.

Usage:

Seed activation:

For vegetable seeds soak 72 hours at 0.5g /gal. For others, soak for 24 hours at the same ratio.

Soil and Container plants:

0.75-1.25g/gal of irrigation solution.

Hydroponic:

0.5-0.75g/gal of nutrient solution used in the reservoir (use with every change. Top-offs can be chared with 1/4-1/2 normal rate).

Foliar Rates:

.75g/gal every 7-10 days.

Field Use:

2-4 pounds per acre every 3-6 weeks. Pre-Plant Soil

Conditioning/Bioremediation:

5-10 pounds per acre. 1/4 tsp= 1g 1/2tsp= 2g

To Make a Concentrated Liquid Solution:

- 1. Add 300 grams of Big 6 or TM-7 to one gallon of hot water (110 degrees F) and agitate.
- 2. After 1 hour, all undissolved solids will have settled.
- 3. Apply liquid solution at a rate of slightly less than 1/2 ounce per gallon of water.

^{*}Please note approx 15% is insoluble and can be cast in compost or garden. Exceeding application rates can cause irregular growth. Store dry and away from excessive heat.

• https://www.taylorfrancis.com/books/mono/10.1201/9781482280425/plant-micronutrients-sharma (Surface info on micronutrients in plants)

Notes From Growers:

Anyone?

BioAg Vam-Endo Myco Mix

Ingredients:

- 7 species of Granular Arbuscular mycorrhizal fungi, resulting in superior plant and root growth.
- Glomus intraradices... 104propagules/gm
- Glomus claroidium... 9 propagules/gm
- Glomus deserticola... 9 propagules/gm
- Glomus mosseae... 9 propagules/gm
- Glomus etunicatum... 9 propagules/gm
- Gigaspora albida... 9 propagules/gm
- Glomus clarum... 9 propagules/gm

Build A Soil Description:

Use in a variety of applications including dry broadcast for turf and farms or add to liquid for hydroponic, irrigation, and hand-watering applications. Use for seed treatments, clones/cuttings, and fortification after making compost tea. Grown In Vivo. No Trichoderma.

General:

"VAM Endo-Mix is BioAg's blend of endomycorrhizal fungi. In nature these fungi form symbiotic relationships with plant roots; increasing the plant's ability to access water and nutrients in the soil system. Our blend was designed to cover a wide array of plants that are compatible with endomycorrhizal fungi. The fungi in VAM are mixed with humic acids as a start-up food source. VAM works the best when applied directly to seeds or roots." - BioAg

Benefits:

"Improves the uptake of immobile nutrients like Phosphorus. Helps with plant health during the transplanting process Early applications show a positive effect on root establishment Improve overall plant health and decrease the risk of abiotic stress Optimizes efficiency of applied fertilizers, especially phosphorous Improves drought tolerance, allowing water reduction" -BioAg

Usage:

General Application Rates:

IMPORTANT NOTE: Beneficial Fungi should have contact with the roots in order to be most effective. Do not use chlorinated water.

Transplants:

Apply directly to the roots. For trees and vines use 2 tbs per plant. For vegetables, strawberries, and other row crops, apply 1 tsp per plant.

Planting Seeds:

Apply the product in the furrow beneath the seed at the rate of 1 tbs per row foot, or broadcast at the rate of 2 tbs per square foot and rake into the upper soil layer before planting.

Expiration date:

Two years from the date of manufacture Exceeding application rates can cause irregular growth. Store in a cool dry place with prolonged temperatures not exceeding 90 degrees. Avoid direct sunlight. Use in a well-ventilated place.

Research:

 https://static1.squarespace.com/static/62190097a619d31a497dd774/ t/623fef113007652a5b1e38db/1648357137868/BioAg_VAM_Tech_S heet.pdf (Product Website)

Notes From Growers:

Anyone?

Bio-char

Ingredients:

• Beetle kill wood

Build A Soil Description:

Our Pre-Charged Char is soaked in a mixture of Ferti Nitro soy aminos at a rate of 1/2lb per yard and rootwise microbe complete at 10z per yard.

General:

Biomass (wood, corn husks, poultry manure, etc.) is heated at high temperatures in closed containers with little to no oxygen.

Biochar is a carbon-rich material that is made from biomass through a thermochemical conversion process known as pyrolysis.

Usage:

Recommended at 5% of your Organic Potting Soil mix.

Research:

- https://www.canr.msu.edu/news/biochar-an-emerging-soil-amendm ent (Bio-char an emerging soil amendment)
- https://www.rit.edu/sustainabilityinstitute/blog/what-biochar-and-how-it-made (What is bio-char and how is it made)

Notes From Growers:

Anyone?

Blue Corn Seed

Ingredients:

• Blue corn seed

Build A Soil Description:

Blue Corn Seed is certified Organic and totally untreated this is a food-grade product that is rare to find.

Enzymes are a catalyst that assists the other nutrients and helps supercharge your soil.

Corn is known to be high in Cytokinins.

"Cytokinins will increase the girth and tinsel strength of the side branches and stronger branches will produce larger and heavier flowers." -Clackamas Coots

Cytokinin Functions

A list of some of the known physiological effects caused by cytokinins are listed below. The response will vary depending on the type of cytokinin and plant species (Davies, 1995; Mauseth, 1991; Raven, 1992; Salisbury and Ross, 1992).

Stimulates cell division.

Stimulates morphogenesis (shoot initiation/bud formation) in tissue culture.

Stimulates the growth of lateral buds-release of apical dominance.

Stimulates leaf expansion resulting from cell enlargement.

May enhance stomatal opening in some species.

Promotes the conversion of etioplasts into chloroplasts via stimulation of chlorophyll synthesis.

Usage:

5 gallons:

56 Grams of Corn Seed (2 Ounces)

Soak for 12-24 hours with Clean Water

Sprout seeds until the tail is 1/2 inch long or about 1-2 days.

Blend in a food blender or whatever you have with a little bit of water to help it blend.

Add this to 5 gallons of water

Research:

- https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
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 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 <a href="https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 <a href="https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 <a href="https://onlinelibra
- https://www.biologydiscussion.com/plant-physiology-2/plant-horm-ones/cytokinins-history-function-and-uses/44749 (Cytokinins: History, Function and Uses)
- https://www.frontiersin.org/articles/10.3389/fpls.2019.01777/full (Role of Cytokinins for Interactions of Plants With Microbial Pathogens and Pest Insects)

Page 44

• https://gkscientist.com/functions-of-cytokinins-in-the-plant-body/ (What Are Cytokinins? Discuss the functions of Cytokinins in the plant body?)

Notes From Growers:

"The other big one is corn and this seed produces a wide range of Cytokinins on par with coconut water. With the international market demand for coconut water is pushing the price higher and higher and it's only going to get worse. By using sprouted corn teas you will get the benefits from the Cytokinins without the expense. You don't need to order organic corn seeds online or jump through hoops — just head over to your favorite supermarket and go to the popcorn section and buy organic popcorn. Even Walmart carries 3 or 4 brands of organic popcorn. One thing about using corn is that I found it easier to puree these seeds once the tap roots grew out to 1" or so which softened the original corn seed.

I switch between alfalfa and corn seeds during the vegetative for the compounds I mentioned. Cytokinins will increase the girth and tinsel strength of the side branches and stronger branches will produce larger and heavier flowers."

- Clackamas Coots

Blue Oyster Mushroom Straw Log

Ingredients:

- Made from certified organic straw and a specially selected Blue Oyster colonized grain
- Populated with lots of Fungal activity these Blue Oyster Mushroom Straw Logs are now made from scratch locally in Western Colorado.

Build A Soil Description:

These logs used to be sold AFTER the mushroom farm had already harvested 1-2 flushes from each bag. The waste created from the mushroom farm became our absolute favorite mulch. Over the years, we thought about making this product from scratch instead of using it as waste from the farm and in 2022 the local mushroom farm closed its doors. This then accelerated the idea and we are now proud to offer Virgin Blue Oyster Straw logs ready to grow your own mushrooms or just use as mulch.

Notice: Over time the logs will start to get covered in green mold that is actually Trichoderma if left inside the plastic. Some people prefer this and others want balance and will opt to open and mulch right away. It's all up to you!!! Trichoderma is aggressive and although very beneficial to soil growing it can also take over some of your other beneficials. I'm going to use these without letting them sit for too long to make sure I have balance.

Our Oyster mushroom straw has been shredded, then pasteurized at 170 degrees F for one hour, which cleans it of any weed seeds or contaminants. This specific strain of Oyster mushroom thrives in a temperature range of 65-75 degrees F. As the mycelium primarily decomposes the straw, sugar, and protein are made available to the soil web. Nematodes and top feeding roots will work together with the straw when used as a top dressing in pots or soil. Mycelium can work as an active composter on your topsoil when kept moist, and remain active within the soil network as a super-communicator improving overall soil health.

Usage:

To grow oyster mushrooms: Cut 5-10 holes in the bag by making a 1" slit in the shape of an X pattern. The mushrooms will then start to grow outside of the bag. After a few days, you will have mushrooms growing and you can harvest them when ready. After you are done you can dry and soak and then flush again or you can just use it as mulch.

Spread out onto your garden beds and/or growing containers as a high fungal living mulch. This mulch layer will help aid in the breakdown of delivery of all top dressings.

Leave in the bag for multiple months and the entirety of the log will turn to Trichoderma, a genus of fungi that is present in all living soils.

Research:

• I don't even know where to start

Notes From Growers:

BuildABloom

Ingredients:

- Non-GMO micronized soy meal
- Micronized soft rock phosphate
- Water soluble fulvic acid
- Water soluble gypsum
- Horticultural Epsom
- 2-10-5 (N-P-K)
- 6.2 Ph

Build A Soil Description:

BuildASoil's long-awaited amino acid formula for flowering plants. Most companies will offer a bone meal, guano, or phosphoric acid product for their flowering lineup, but we didn't want to go that route! After years of searching, we teamed up with a manufacturer that we trust and found a way to use ingredients that we respect. The reason it works? The premium vegan non-GMO soy aminos help chelate the micronized minerals and make phosphorus, potassium, and calcium more readily available. The results are dramatic! You'll experience bigger, denser, and sweeter flowers and you'll know exactly why

Usage:

Living Soil

Root Drench/Foliar 1 tsp per gallon of water 1 cup per 50 gallons of water

Soilless/Hydro

Water In/Foliar
1-2 tbs per gallon of water
3 cups per 50 gallons of water

Acreage

1-2 lbs per acre3-5 applications per season

- https://rex.libraries.wsu.edu/esploro/outputs/report/Epsom-salt-use-in-home-gardens/99900503081201842 (Epsom salt use in home gardens and landscapes)
- https://www.mrfulvic.com/how-does-it-work/ (How does fulvic acid work)
- https://www.agtonik.com/post/fulvic-acid-use-for-cannabis-plants (More fulvic acid info)

Notes From Growers:

Anyone?

Build-A-Flower Top Dress

Ingredients:

- Oly Mountain Fish Compost
- BuildASoil Worm Castings
- Diamond K Ag Gypsum
- High P Organic Rice Bran
- Thorvin Icelandic Kelp Meal
- Organic Mustard Seed Meal
- BuildASoil Pre Charged Bio-char with Rootwise Mycrobe Complete

Build A Soil Description:

Increased yield is often related to the health of the plant. To have a healthy plant, the soil must be in top shape. Many expensive flowering nutrients are based on sugars and complex carbohydrates that are a waste of money. The Build-A-Flower Top Dress kit is a well-rounded and complete approach to flowering. With one top dress, you effectively add all the nutrients and micro-nutrients required for healthy soil.

Usage:

Apply on the surface of the soil near the plant and then water to moisten. Use to cover 1-2" across the entire top of your container

Research:

• Have at it there is so much that can be looked into

Anyone made a tea with build a flower?

Build A Soil Home Brew 6 Pack

Ingredients:

- Worm Castings X 2
- Chicken Manure Pellets
- Oly Mountain Fish Compost
- BuildAFlower
- Malibu Compost

Build A Soil Description:

Looking for Diversity in your Compost Tea Brew, this 6 pack is the right pick for you.

Usage:

Scale by 5 gallon increments following the recipe below:

5 Gallon Bucket of water (4-5 gallons of water)
1.5 Cups Total Compost (Any of the 6 Pack Composts or a Combination)
1/3 Cup Molasses(About 5 tablespoons) Or 4 Tablespoons BuildASoil
Aminos (If you have some)

Brew in compost tea brewer or stir with a stick as often as possible for 24-48 hours.

See the article with more details.

https://buildasoil.com/blogs/news/8322788-how-to-make-compost-tea-in-3-easy-steps

Safe to use on your plants un-diluted 100% strength or you can stretch it out by diluting up to 50%

Research:

• <u>www.MicrobeOrganics.com</u> (General Info)

Anyone?

C

Calcium Phosphate (BAS)

Ingredients:

• Micronized Calcium Phosphate

Build A Soil Description:

3 Times more available than standard Calcium phosphate due to it's fine micronization.

BuildASoil Calcium Phosphate is a natural mined mineral used for soil building. It can be applied dry or in a liquid suspension to the soil.

For best results apply BuildASoil Calcium Phosphate anytime you would use normal Calcium Phosphate products.

Usage:

Use at rate of 1/2 - 1 Cups per cubic foot of potting soil. (Cubic foot is about 7.5 gallons of soil)

Use at 15-30 lbs per cubic yard of potting soil.

Broadcast at half ton per acre for standard application

Use at 1 teaspoon per gallon with emulsifier for liquid suspension.

Research:

• https://www.finefertilizer.com/phosphate-fertilizer/calcium-phosphate-fertilizer-for-plants (Might be a bit plagarized but has some info)

Anyone?

Camelina Meal (Wild Flax)

Ingredients:

• Camelina Meal (Camelina sativa (L.) Crantz)

Build A Soil Description:

Camelina Meal also known as Wild Flax is High in Nitrogen and has good moisture holding capacity.

Camelina Meal is a perfect alternative for Canola Meal or Flax Seed Meal.

Usage:

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Aliquet eget sit amet tellus cras adipiscing.

Research:

- https://www.feedipedia.org/node/4254 (Camelina Article)
- https://www.frontiersin.org/articles/10.3389/fmicb.2019.00537/full (Fungal Community Structural and Microbial Functional Pattern Changes After Soil Amendments by Oilseed Meals of Jatropha curcas and Camelina sativa: A Microcosm Study)
- https://trid.trb.org/view/1108701 (Camelina Evaluation for Soil Amendment)

Notes From Growers:

Anyone?

Captain Jack's Deadbug

Ingredients:

• Lorem ipsum dolor sit amet

- consectetur adipiscing elit
- sed do eiusmod tempor incididunt
- ut labore et dolore magna aliqua.

Build A Soil Description:

Captain Jack's Deadbug Brew Concentrate is a Spinosad-based insecticide that takes advantage of the unique bacterium's pest control properties to effectively control bagworms, borers, beetles, caterpillars, codling moth, gypsy moth, loopers, leaf miners, spider mites, tent caterpillars, thrips and more.

General:

INSECT KILLER - This pest control is great for use on bagworms, borers, beetles, caterpillars, codling moth, gypsy moth, spider mites, loopers, leaf miners, tent caterpillars, thrips and more.

VARIETY OF FOLIAGE - Protects a wide variety of plants including fruiting vegetables, cucurbits, cole crops, leafy vegetables, tuberous vegetables, stone fruits, bushberries, and pome fruits.

TARGETS PROBLEM INSECTS - Product is intended for control of listed insects. It does not significantly impact predatory beneficial insects, predatory mites, and spiders while controlling target pests.

ORGANIC GARDENING - The active ingredient in Dead Bug Brew is a naturally occurring bacteria called Spinosad. Spinosad is a leading pesticide used worldwide in the production of organic produce.

EASY SPRAY APPLICATION - Product instantly mixes with water and should be applied with a trigger, hand-held, backpack, or hose-end sprayer. Carefully read and use according to label directions

Usage:

Mix 2 fl oz per gallon

Research:

 https://www.frontiersin.org/research-topics/15376/the-use-of-plantextracts-and-essential-oils-as-biopesticides (The Use of Plant Extracts and Essential Oils as Biopesticides) Large PDF Download on site

Anyone?

Canadian Sphagnum Peat Moss

Ingredients:

• Sphagnum Peat Moss

Build A Soil Description:

Peat moss has been used by gardeners for a very long time and changed gardening forever. Peat Moss is used to retain water in plants and also does a fantastic job of keeping nutrients available instead of leaching into the soil.

Usage:

Soil Building:

Recipe #1:

Ratio 1:1:1

- 1 Part Sphagnum Peatmoss, Coco, Leaf-mold, etc.
- 1 Part Aeration material like lava rock, pumice, perlite, rice hulls etc.
- 1 Part Compost

Recipe #2:

8 Parts

5:2:1

5 Parts Sphagnum Peatmoss (62.5%)

2 Part Aeration (25%)

1 Part Compost (12.5%)

Recipe #3:

Mix several different ratios together and send them to the lab.

70% Peat, 10% Compost, 20% Aeration

60% Peat, 20% Compost, 20% Aeration

50% Peat, 30% Compost, 20 % Aeration

33% Peat, 33% Compost, 33% Aeration

• https://www.youtube.com/watch?v=30JdA45LXXk (Solid video on Sphagnum Moss)

Notes From Growers:

Anyone?

Chicken Manure (NutriGrow)

Ingredients:

Pelleted chicken fertilizer

Guaranteed Analysis:

- Total Nitrogen (N) 4.0%
- Available Phosphate (P205) 4.0%
- Soluble Potash (K20) 3.0%

Build A Soil Description:

NutriGrow Organic Chicken Manure is a all purpose pelleted chicken fertilizer from certified organic fed cage-free chickens right here in Colorado.

General:

Low Odor All-Natural Slow-Release Fertilizer Cage-Free Chickens Weed Seed and Pathogen Free High in Calcium and Trace Minerals Helps to Build Humus and Enhances Microbial Activity

Usage:

Flower Beds and Gardens:

Till 5-10 lbs per 100 sq. ft. into soil 3"-4" deep before planting. For mid-season fertilization, top dress 4-5 lbs per 100 sq. ft.

Established Lawns:

Spread at the rate of 10-15 lbs per 1000 sq. ft. per application in the late spring and again in mid-summer, and as a winterizer in the early fall. Thoroughly water following each application.

New Lawns:

Before seeding or sodding, till 50 lbs per 1000 sq. ft. into soil 3"-4" deep.

Potted Plants:

Thoroughly mix one part NutriGrow Organic Chicken Manure with 20 parts of potting soil. For established plants, top dress one Tablespoon for each 4" diameter pot, and 2 Tablespoons for each 6" diameter pot.

Research:

• https://nutrigrow.ca/ (Website)

Notes From Growers:

Anyone?

Clover Cover Crop (White Dutch)

Ingredients:

• White Dutch clover seeds

Build A Soil Description:

This seed is sprouting quality and very clean, when you compare to the pricing of similar Organic Sprouting seed from the health food store you can quickly see the Value.

Dutch white clover is a slow-growing, nitrogen-fixing perennial. Once established, it provides long-term cover. It is often used in high traffic areas to minimize soil compaction and improve soil health. White clover tolerates wet conditions.

Usage:

Seeding rate: Drill 5-9 lb/acre

Broadcast 7-14 lb/acre

After seeding, roll the ground to improve seed-to-soil contact, but do not crush soil aggregates.

Research:

- https://cdn.shopify.com/s/files/1/0248/9641/files/whiteclover.pdf?3617857433377046222 (Cornell White Dutch fact sheet)
- https://www.canr.msu.edu/news/benefits of white clover (Benefits of white clover as a cover crop)

Notes From Growers:

Anyone?

Coco Coir

Ingredients:

• Coco Coir

Build A Soil Description:

The Coco Coir fibers have excellent water retention properties while they maintain structure and trap air. Great for propagation, coir is best suited for flowering and fruiting. It's rot-resistant, boasts near-perfect pH levels for growing, provides good insulation and is biodegradable.

Usage:

Can be used as a soilless growing medium Can be used in turn of peat in soil building

Research:

• https://www.epicgardening.com/coconut-coir/ (Good info)

Notes From Growers:

Coco Coir (Conibo Organics)

Ingredients:

• 100% natural, no chemical buffering coconut substrate.

Build A Soil Description:

Conibo Organics was the very first company to commercially process coconut husk into a planting medium in 1984. Since then, our founders helped to convert conventional farms into innovative organic certified farms on over 20,000 acres throughout the United States and Latin America. We have been continuously researching, testing and developing the finest evidence-based growing mediums, while demonstrating gains on yields and competitive crop prices. Through years of growth trials completed by our customers with vegetables, berries, ornamentals, flowers and hemp, Conibo has developed the finest quality hydroponic coco substrates available today.

From extensive research and modeling, Conibo organics has developed the highest quality coco planting media available to growers worldwide. By applying organic processes, our substrates provide products that eliminate the worries of contamination of mold spores, heavy metals and chloride salt issues. We meet the strict requirements of organic farming techniques, providing the foundation for healthy, disease resistant plants and explosive blooms. Roots are robust and established quickly. Our strict quality control program throughout the process assures a dependable, finest quality coco substrate for commercial farms and garden enthusiasts.

Usage:

Can be used as a soilless growing medium Can be used in turn of peat in soil building

Research:

• https://www.coniboorganics.com/

Notes From Growers:

Coconut Water Powder (Raw Freeze Dried)

Ingredients:

• 100% freeze Dried Coconut Powder

Build A Soil Description:

No Fillers or starches, just pure all natural freeze dried young coconut water powder.

Usage:

1 Tablespoon weighs 12 grams 1/2 lb of coconut water powder equals roughly 19 TBSP Follow directions and don't be scared to taste test

Coconut Water:

Use at 1.5 tablespoon per 8 ounces of water to make reconstituted coconut water.

Direct Plant Recipe:

1/2 - 1 Teaspoon per Gallon Water
1/3 Pound per 50 gallons water
1 Pound per 150 gallons water
Use as Foliar Spray or Soil Drench through both veg and flower

Acreage Use:

1/2 Pound Per Acre Foliar or 1 Pound Per Acre Drip System

Research:

• https://www.mdpi.com/1420-3049/14/12/5144/htm (The Chemical Composition and Biological Properties of Coconut (Cocos nucifera L.) Water)

Notes From Growers:

Cover Crop Blend (12 Seed Mix 60% Clover)

Ingredients:

- Flax Carter
- Clover Yellow Sweet
- Clover White Dutch
- Clover Medium Red
- Clover Crimson
- Lentils Indianhead
- Millet White Proso
- Vetch Hairy
- Vetch Common
- Cowpeas Red Ripper
- Buckwheat Mancan
- Pea Forage

Build A Soil Description:

This Recipe has been tweaked over the years and is finally where we like it. Perfect for Raised beds or Container plants.

Almost 60% Clover Seed from 4 types of clover.

Designed To Encourage Mycorrhizal Fungi Populations

Stimulate Soil Biological Activity

Cycle Nutrients More Effectively

Create a No-Till Living Organic Soil utilizing all Natural Non-GMO cover crop seeds.

Finally, we have found a cover crop blend that we can put our name behind.

Usage:

Use about 6 Grams or 1/2 Tablespoon of Cover Crop Seeds for every square foot of soil surface area.

If you are broadcasting on open land each pound will cover about 900 Square Feet.

A 2-pound bag would cover over 55 (8'x4') Raised Beds.

Research:

- https://www.biotill.com/crops/ Cool Cover crop site)
- https://www.biotill.com/wp-content/uploads/2022/08/Flax-Tech-Sheet.pdf (Flax Tech Sheet)
- https://www.ag.ndsu.edu/fss/ndsu-varieties/fact-sheets-and-brochures/CarterFlax.pdf (Carter Flax)
- https://www.biotill.com/crops/legumes/sweet-clover/ (Sweet Clover)
- https://www.biotill.com/crops/legumes/dixie-crimson-clover/ (Crimson Clover)
- https://www.noble.org/videos/cover-crop-series-mancan-buckwheat / (Mancan Buckwheat)
- https://www.biotill.com/crops/legumes/vital-hairy-vetch/ (Hairy Vetch)
- https://www.biotill.com/crops/legumes/common-vetch/ (Common Vetch)
- https://store.greencover.com/products/lentil-indian (Indianhead lentil)
- https://birdagronomics.com/products/cover-crop-seed/scavengers/white-proso-millet/ (White Proso Millet)
- https://www.noble.org/videos/red-ripper-cowpeas/ (Red Ripper Cowpeas)

Notes From Growers:

Cover crop has worked well for me, just have to be vigilant about the viney crops entangling themselves in your plants.

Cover Crop (Fall Cold Tolerant)

Ingredients:

- 10.26% White Dutch Clover
- 89.74% Winter Rye Hazlet

Build A Soil Description:

This blend is designed for low-cost broadcasting of seed and is extremely cold weather tolerant and will grow well in heavy alkaline soils.

Ideal Sowing is as soon as possible after harvest with the final window of opportunity in late October as the water shuts off after October 31st.

Seeds will sprout and grow all winter but anything not germinated in fall will come up in early spring when snow is still out.

Usage:

Broadcast at a rate of 39 lbs per acre

Research:

- https://www.uvm.edu/vtvegandberry/factsheets/winterrye.html (Winter Rye)
- https://cdn.shopify.com/s/files/1/0248/9641/files/whiteclover.pdf?3617857433377046222 (Cornell White Dutch fact sheet)
- https://www.canr.msu.edu/news/benefits of white clover (Benefits of white clover as a cover crop)

Notes From Growers:

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Aliquet eget sit amet tellus cras adipiscing. Imperdiet nulla malesuada pellentesque elit eget gravida cum.

Cover Crop (Rye and Clover 70/30)

Ingredients:

- 70% Rye grass is effective as a smother crop to outcompete native weeds.
- 30% Red Clover stays short and fixes nitrogen

Build A Soil Description:

Build soil by increasing the organic matter Transition from traditional to no-till in half the time* Simple Blend With NO VINES Excellent Interseeded Between Rows Low Growing Living Mulch

Usage:

For interseeding - Drilling use 5lbs per acre. For broadcast use 7lbs per acre

Full acre application - Drilling use 10lbs per acre. For broadcast use 14lbs per acre.

Research:

- http://ryegrasscovercrop.com/about-us/ (Rye Grass)
- https://www.canr.msu.edu/news/benefits of using red clover as a cover crop (Red Clover)

Notes From Growers:

Anyone?

Cover Crop (Spring Cold Tolerant Green Manure)

Ingredients:

- 9.09% Koto Buckwheat
- 9.09% Berseem Clover
- 27.27% Everleaf 126 Oats
- 45.45% Icicle Field Peas
- 9.09% Hairy Vetch

Build A Soil Description:

Normally here in Montrose, hemp farmers are planting their clones or seedlings in late may but mostly from June - July. This means we need a spring cover crop that can fix 100lbs of Nitrogen and out-compete the weeds while attracting all the beneficial insects and soil microbes.

Germination has to take place below 40 degrees or we won't get anything established by the time we need to plant and the cover crop will be a waste.

This specific blend was designed with all of the parameters in place and will easily terminate and be ready for planting your hemp. Not only that this

blend will provide ample organic matter and fix a significant amount of nitrogen to offset the soil amendment cost.

This blend is designed for low-cost broadcasting of seed and is extremely cold weather tolerant and will grow well in heavy alkaline soils.

Ideal Sowing is as 10 weeks before your Hemp Planting date. For most people that is the end of March. This will allow for full cover crop growth and enough time to terminate before it goes to seed and allow for a productive main growing season.

Usage:

Broadcast at a rate of 55 lbs per acre

Research:

- https://www.beesource.com/threads/koto-buckwheat-anyone-have-experience-with-it.322256/ (Koto discussion)
- https://greener4life.com/blog/buckwheat-green-manure (More buckwheat info)
- https://www.sare.org/publications/managing-cover-crops-profitably/legume-cover-crops/berseem-clover/ (Berseem Clover)
- https://gardenex-en.decorexpro.com/goroh-kak-siderat/ (Peas)
- https://www.biotill.com/crops/legumes/vital-hairy-vetch/ (Hairy Vetch)
- https://www.kingsagriseeds.com/wp-content/uploads/2015/09/Oats-brochure_06-03-19.pdf (Oats)

Notes From Growers:

Anyone?

Cobalt Sulfate-Heptahydrate 99.5%

Ingredients:

• Cobalt Sulfate-Heptahydrate

Build A Soil Description:

Analytical reagent for spot analysis of zinc. Used as an absorbent for ammonia. In the manufacture of applied instruments, it is used to produce barometers, hydrometers, dry and wet indicators, etc. The ceramic industry is used as a colorant; the paint industry is used to manufacture paint driers, and the brewing industry is used for beer foam stabilization; The national defense industry is used for the manufacture of poison gas hoods; used as catalysts in chemical reactions. It is also used to manufacture invisible inks, chlorinated drill test paper, color-changing silica gel, etc. It is widely used in electronics, instrumentation, and metallurgical industries.

Usage:

?

Research:

• 1

Notes From Growers:

Anyone?

Comfrey Extract (Liquid)

Ingredients:

- Probiotically Grown Comfrey
- Clean Mountain Water
- EM-1
- Home Made LABS (LactoBacillus Serum)
- Super Cera Powder
- Molasses

This is then fermented until the comfrey is digested and extracted into the liquid and the molasses consumed by the microbes to lock in the PH for stability and ease of use in the garden.

Build A Soil Description:

Comfrey has been used in the garden for ages because of it's ability to mine nutrients from deep in the soil and create special properties that have been highly sought out for it's medicinal benefits and fertilizer benefits.

Here is a known list of the constituents that might be valuable to the gardener using comfrey: Potassium, calcium, chromium, cobalt, copper, magnesium, manganese, boron, zinc, and iron. It is high in vegetable protein; in fact, you can get 20 times more protein from an acre of comfrey than you can from the equivalent amount of soybeans. Comfrey is one of the few plants that contain B-12 and is high in vitamin A, plus B-1, B-2, B-3, B-5, B-6, C, and E. It has been considered as a potential food source for starving countries due to its protein content and is high in chlorophyll.

General:

Comfrey is a complicated herb, containing a large number of constituents. Pyrrolizidine-type alkaloids (PA) have been the major topic of concern. There are 12 known PAs in comfrey which includes: symphytine, symlandine, echimidine, intermidine, lycopsamine, myoscorpine, acetyllycopsamine, acetylintermidine, lasiocarpine, heliosupine, viridiflorine, and echiumine. It also contains carbohydrates e.g. glucose and fructose in the form of Inulin, as well as the gums: arabinose, glucoronic acid, mannose, rhamnose, and xylose. Comfrey contains tannins which are substances that bind up proteins giving them astringent properties; and the Triterpenes: sitosterol, stigmasterol, steroidal saponins, and isobauerenol. Other constituents include all antoin, caffeic acid, carotene, chlorogenic acid, choline, lithospermic acid, rosmarinic acid, and silicic acid. The therapeutic value of comfrey is attributed to its content of allantoin, a cell proliferant, and rosmarinic acid, an anti-inflammatory agent and inhibitor of microvascular pulmonary injury. The rhizome of comfrey contains a higher percentage of all antoin in the early spring (January to March), decreasing as the plant grows. The allantoin then transfers to the young shoots and buds until the fall. Comfrey also contains an abundance of mucilage, a slimy, moist polysaccharide that works to moisten and soothe tissues.

Usage:

Watering Plants:

1-3 ounces per gallon of clean water.

Foliar Spray:

1 ounce per gallon

- http://www.herballegacv.com/Seitz Comfrev.html
- https://growingorganic.com/growing-guide/comfrey/#harvestingstoring (Growing Comfrey)
- https://fermentedplantextracts.com/product/fermented-plant-extracts-co

Notes From Growers:

Anyone?

Copper Sulfate

Ingredients:

- Lorem ipsum dolor sit amet
- consectetur adipiscing elit
- sed do eiusmod tempor incididunt
- ut labore et dolore magna aliqua.

Build A Soil Description:

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Aliquet eget sit amet tellus cras adipiscing. Imperdiet nulla malesuada pellentesque elit eget gravida cum. Semper risus in hendrerit gravida rutrum quisque non. Imperdiet nulla malesuada pellentesque elit eget gravida cum sociis. Rutrum quisque non tellus orci ac auctor augue. Velit aliquet sagittis id consectetur purus ut. Sed elementum tempus egestas sed sed risus pretium. In ante metus dictum at.

Usage:

!USE PPE!

Lots of usage info, the best resource for usage: https://www.coppersulfatecrystals.com/how-to-use-copper-sulfate

Research:

• https://cdn.shopify.com/s/files/1/0248/9641/files/SPECCopper_Sulfate.pdf?6803639519190445332 (Spec Sheet)

• https://cdn.shopify.com/s/files/1/0248/9641/files/MSDSCopper Sulfate Powder.pdf?6803639519190445332 (MSDS Sheet)

Notes From Growers:

Anyone?

Citric Acid

Ingredients:

- OMRI Listed Citric Acid
- Ph 3.2 avg (3-6 range)

Build A Soil Description:

This OMRI listed Citric Acid is a great way to decrease PH safely.

Usage:

Add little by little to bring down Ph to desired level.

Research:

• N/A

Notes From Growers:

Anyone?

Craft Blend

Ingredients:

• 3-5-2 (N-P-K)

Equal by weight:

- <u>Thorvin Premium Kelp Meal</u>
- Wild Flax Seed Meal
- Alfalfa Meal
- BuildASoil Organic High P Bran
- Camelina Meal
- Crustacean Meal

- Fish Meal
- 3x Fish Bone Meal
- Soybean Meal
- Sul-Po-Mag (Also Known as K-Mag or Langbeinite)
- Organic Malted Barley
- Volcanic Tuff
- Micronized Basalt Blue Ridge Meta
- Gypsum
- Oyster Flour

Build A Soil Description:

Every nutrient that we have into a fertilizer pack of the cleanest ingredients for everyone to use.

General Test Results From Random Sample Below:

Calcium 8.27 % AOAC 965.09 ICP

Copper < 0.01 % AOAC 965.09 ICP

Magnesium 1.29 % AOAC 965.09 ICP

Zinc 0.01 % AOAC 965.09 ICP

Arsenic 0.86 mg/Kg 3050B, 6010D

Cadmium 1.0 mg/Kg 3050B, 6010D

Cobalt 1.9 mg/Kg 3050B, 6010

Lead 3.6 mg/Kg 3050B, 6010D

Mercury 2.7 mg/Kg 7471B

Molybdenum 4.47 mg/Kg 3050B, 6010

Nickel 10 mg/Kg 3050B, 6010D

Selenium 2.3 mg/Kg 3050B, 6010D

Usage:

Craft Blend weighs about 8.3 Ounces per cup ~ 1/2 pound per cup

Brew All Around Balanced Nutrient Tea's for Veg - Flower

(1/4 - 1 Cup Per 5 gallon Bucket of Water)

Re-Amend

2-4 Cups Per Cubic Foot

(Cubic foot is about 7.5 gallons of soil)

Top Dress

1/4 - 1 Cup Per Plant.

- Thorvin Premium Kelp Meal
- Wild Flax Seed Meal
- Alfalfa Meal
- BuildASoil Organic High P Bran
- Camelina Meal
- Crustacean Meal
- Fish Meal
- 3x Fish Bone Meal
- Soybean Meal
- Sul-Po-Mag (Also Known as K-Mag or Langbeinite)
- Organic Malted Barley
- Volcanic Tuff
- Micronized Basalt Blue Ridge Meta
- Gypsum
- Oyster Flour

Notes From Growers:

Anyone?

Crustacean Meal

Ingredients:

• Seasonal item and will be Shrimp, Crab or a combination of both depending on the time of year and the fishing season.

Build A Soil Description:

Crustacean Meal is another powerful organic fertilizer, compost starter, and bug control all in one!

With Nitrogen, and Phosphorus along with being High in Calcium (CaCo₃) and Chitin. This is considered a Super Food for your soil

Usage:

For soil building or using as a top dress

Apply at a rate of 1/2 cup per cubic foot of soil.

- https://growingorganic.com/soil-guide/crustacean-meal/ (Growing Organic Crustacean Meal Breakdown)
- https://apsjournals.apsnet.org/doi/full/10.1094/PHYTOFR-03-21-0
 <a href="https://apsjournals.apsnet.org/doi/full/10.1094/PHYTOFR-03-21-0
 <a href="https://apsjournals.apsnet.org/doi/full/10.1094/PHYTOFR-03-21-0
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Notes From Growers:

Anyone?

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Dandelion Ferment

Ingredients:

- Water
- Organic Molasses
- Wildcrafted Dandelion
- Lactic Acid Bacteria

Build A Soil Description:

Fermented with lactic acid bacteria (LAB) and molasses to break down the plant fibers making the nutrients and beneficial properties they contain more accessible for your garden plants.

Usage:

Application Rate:

Use 1 oz -4 oz of ferment per gallon of water. It can be used as a drench or foliar application.

Store in a cool & dark place at room temperature, 68°F to 86°F (20°C-30°C), and out of direct sunlight. Keep out of reach of children • Avoid contact with eyes or open wounds • Not for human consumption

• https://journals.plos.org/plosone/article?id=10.1371/journal.pone.o
239076
(The effects of solid-state fermentation on the content, composition and in vitro antioxidant activity of flavonoids from dandelion)

Notes From Growers:

Anyone?

Diatastic Organic Barley Malt Extract

Ingredients:

• 100% pure diastatic malted barley which has been milled from the whole malted barley kernel—the husk, endosperm, and germ.

Build A Soil Description:

Diastatic power is a measure of how much starch-converting enzyme any given malt contains. When you make the jump from extract brewing to all-grain, you'll want to make sure you have enough. If you don't, your mash will fall short of its intended starting gravity. Fortunately, modern malts usually have plenty. You will really only need to worry about it when your recipe has a large number of grains without any diastatic power.

Diastatic power is measured in degrees Lintner. As a general rule of thumb, you want to make sure your mash averages 70 Linter or above. With most recipes, this isn't too hard to do. Also, note that heat can destroy diastatic power. If this is your first mashing attempt, or if your temperature targeting is a bit off, I suggest you keep the diastatic power above 100 to be safe.

Note that some malts have a lot of diastatic power. 6-row malt is the highest. Others don't have any, such as crystal malt, and anything that falls into the category of "unmalted". Specialty malts such as Munich malt are at the low end of the range. Since most recipes use a lot of diastatic-containing malts and only a small amount of non-diastatic, the total diastatic power is seldom a problem. I'll illustrate the calculation with a few examples.

Take a typical Pale Ale for example. If you use 6 lb of 2-row Pale Ale malt (DP = 110) and 1 pound of crystal malt (DP = 0) your average is 94 and you have nothing to worry about. The mash should work fine.

As another example, take my recent Witbier recipe, which had 3.5 lb Pilsner malt (DP = 125), 1.5 lb 6-row malt (DP = 150) and 5 lb of unmalted wheat (DP = 0). Note that in this example, fully half of the grain had no diastatic power. This averaged out to 66 Lintner. As it turned out, I missed my target gravity on this recipe! If I had substituted all the pilsner malt with 6-row malt, the DP would have been 75 Lintner, which would have worked. Greg recently brewed his "Trit" beer using a mixture of 6-row malt and triticale, an unmalted grain. His recipe hit the target gravity. Another method would have been to replace some of the unmalted wheat with malted wheat. Note that malted wheat has plenty of diastatic power

If you plan to brew with large amounts of zero diastatic grains, I suggest you use 6-row malt. American lager for example typically uses 40% adjuncts such as corn or rice and the remainder is 6-row malt. For most other recipes, you can use 2-row malt, which typically has a richer flavor.

TYPICAL ANALYSIS

Ingredient Clause: Malt

Solids: 79 - 81%

Reducing Sugars (as Anhydrous Maltose): 55 - 65%

Protein: 3.5 - 5.5% pH: (10%) 5.0 - 5.6 Ash: 1.0 - 1.5%

Color Transmittance: 70 - 85

(5.8 Brix @570 mm)

Enzyme Activity 20° Lintner

Specific Gravity 1.4 - 1.405 @20C

Density 11.7# per gallon

Viscosity 22,000 +/- 2,000

cps @ 25C

Microbiological Specifications:

Total Plate Count < 5000/gm

Yeast/Mold < 100/gm

Shelf Life/Storage: Six months, room temperature

Usage:

Use in your garden at 1 tablespoon per gallon of clean water for normal watering.

Replaces using Malted Barley Powder.

Equally effective when combined. For instance use Malted Barley Flour at 1-2 cups per cubic foot in your soil mix and Malt Extract in your irrigation. (Cubic foot is about 7.5 gallons of soil)

Research:

• [

Notes From Growers:

Anyone?

Diatomaceous Earth (Food Grade)

Ingredients:

Diatomaceous Earth

Build A Soil Description:

Odorless and Non Toxic white powder. It is composed of finely milled fossilized shells of organisms called diatoms. The powder has an abrasive quality similar to pumice with very high porosity. The porosity allows it to absorb moisture easily. Because of the pumice-like quality of fossil shell flour, it is widely used to deter crawling insect pests

General:

Use to control crawling indoor & outdoor pests such as crickets, silverfish, bedbugs, carpet beetles and cockroaches.

The EPA has approved it as an anti-caking agent in animal feed. DE is approved by the FDA for internal and external use as a Food Grade Chemical.

Usage:

Sprinkle a light layer of Diatomaceous Earth in areas where pests frequent, including under stoves, cabinets, sinks, garbage cans, window and door frames and sills, entrance ways, sewer pipes and drains, and in cracks and crevices. Repeat treatment as needed.

Research:

• https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.494.926 & rep=rep1& type=pdf (Diatomaceous Earth for Pest Control)

Notes From Growers:

Anyone?

<u>Dried Molasses Powder (From Cane Sugar)</u>

Ingredients:

Dolomite Lime

Build A Soil Description:

Molasses is commonly used in the garden as a food source for microbes in compost tea. Many people also use it to mix up into their soil along with other amendments as a source of carbon. Whatever you use it for we wanted to offer the highest quality that we could find and that meant sourcing it from sugar and not from other plants that are often lower quality and made specifically for animal feed.

Our product is made from cane sugar and made from NON-GMO sugar that is mature and doesn't need to be sulfured to create stability. What you get is a pure single ingredient product that you can use in your garden and feel good about it.

We started carrying this product after several customers asked. We researched different brands based on price and we found out the hard way that many of the animal feed brands have preservatives and other inputs that could be harmful to fungi and soil life. Beware what you might get if you go with another vendor not using the product for their garden the same way BuildASoil does.

Usage:

Casting:

10-20 lbs per 1000 sq ft

To make molasses fertilizer, mix 2 tablespoons with one gallon of water. Apply once a week by pouring it on the soil or spraying it onto plant leaves.

You can also mix it with Epsom salt to make a homemade fertilizer that will improve plant root health and aid in the production of more flowers. Just combine 2 tablespoons of liquid molasses with 1 tablespoon of Epsom salt and 2 gallons of water.

Let the mixture dissolve and use it to fertilize your plants.

Add a handful to jumpstart compost

5. Pest Control

Molasses can be used as a natural insecticide. Just 1.3 mL in one liter of water makes a great insecticidal foliar spray that won't harm your plants or any animals that visit your garden.

It will kill many types of garden pests due to the high <u>sugar content</u> it contains. Some insects such as aphids and <u>mealybugs</u> will get utterly dehydrated after consuming sugary treats.

Ingesting the product will disrupt their digestive system by drawing water from the gut's surrounding tissues, dehydrating, and killing them.

Besides, by spreading 10 to 20 pounds (dried product) per 1,000 square feet of lawn or garden bed, you can help control pests like grub worms and root-knot nematodes. It will also keep out animals like moles and armadillos that eat grubs.

Research:

• https://drecampbell.com/molasses-garden-benefits-and-uses/ (Molasses Uses)

Notes From Growers:

Anyone?

Dolomite Lime (Granulated)

Ingredients:

• Dolomite Lime

Build A Soil Description:

Derived from a natural limestone deposit, for use to correct the pH of acid soil. Dolomite lime is a source of natural calcium and magnesium. Determine your soil pH to determine the proper application rate to sweeten your soil.

Helps correct acidic soil environments
A great source of calcium and magnesium
Dolomite lime is sometimes referred to as 'soil sweetener'
Organic dolomite lime is derived from a natural limestone deposit
Used to correct the pH of acid soil
Source of natural calcium and magnesium
Helps sweeten acid soil

Usage:

A rule to follow is to to use 2 tablespoons of the lime per cubic foot of soil

Note: High in calcium and magnesium, can burn plants

Research:

• https://journals.plos.org/plosone/article?id=10.1371/journal.pone.o
239076
(The effects of solid-state fermentation on the content, composition and in vitro antioxidant activity of flavonoids from dandelion)

• https://www.skunkmagazine.com/true-living-organics-growing-dolomite-lime/?v=7516fd43adaa (Skunk Mag Article)

Notes From Growers:

Anyone?

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Eden BlueGold - Base Blend Wetting Agent

Ingredients:

• BlueGold® Base Blend Wetting Agent

Build A Soil Description:

OMRI Listed

Base Blend is an Organic Wetting Agent that is NOP Compliant and OMRI Listed. Base Blend is formulated from select herbs strong in saponin levels. Base Blend saponins are derived from: Aloe, Angelica, Bhringaraj Leaf, Black Cumin Seed, Kola Leaf, Butcher's Broom, Calendula, Chamomile, Cardamom, Comfrey, Dandelion Root, Eucalyptus, Fennel, Ginger, Ginseng Root, Hibiscus, Maca Root, Moringa Leaf, and Yucca Root.

General:

Wetting Agents are a proven crop management tool. Wetting agents, or surfactants, make water wetter, thereby increasing water penetration into the soil deeper and broader. As Agriculture's most used carrier liquid, water mixes with materials infinitely more efficiently when water tension is reduced using wetting agents. Additionally, as the water penetrates deeper and broader into the soil, the nutrients it carries also penetrate deeper and broader. This gains an immediate benefit in reduced runoff and reduced burn-off of nutrients, and in the case of soil with proper biological levels, the nutrients are taken deeper straight to the biology and quicker, more efficient processing.

Additionally, wetter water is also known to break down salt bonds and petrol bonds and more quickly hydrate dry soils. Unfortunately, most

wetting agents on the shelf today are formulated from harsh, caustic detergents or ethoxylated surfactants. These introduce harsh pH solutions into your soil or combat your reservoir pH levels. Additionally, these types have questionable safety concerns.

Please note, Wetting Agents 'mine' the soil and help bring nutrition up through the root system. You must put back into the soil what the plants take out in their growing cycle, or the yields, results, and immunity will taper off.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-32 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-3 fl oz per acre

Plane:

32 fl oz. per 5 gallons of water

Hand/Backpack Sprayer:

0.5-1 fl oz per gallon of water

Research:

- https://drive.google.com/file/d/1LadNyay7nxayMwWex1emdzdiA8vl O71z/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/12307 (OMRI Cert)

Notes From Growers:

Anyone?

<u>Eden BlueGold - Boron</u>

Ingredients:

• BlueGold® Boron

Build A Soil Description:

OMRI Listed

Our micronutrient Boron undergoes our Eden Synergy micronization process to maximize immediate bioavailability and is combined with our flagship BlueGold® technology. Derived from Disodium Octaborate Tetrahydrate. BlueGold® Boron is for use with boron-deficient plants. Micronutrients should only be applied in accordance with plant sap and soil analysis.

BlueGold® Boron is designed to disperse quickly, leave minimal residue, and provide a highly efficient source of boron. Many Boron products crystalize as temperature drops, but BlueGold® Boron is formulated at specific rates that will not cause crystallization, putting less stress on equipment.

General:

Boron (B) is an essential micronutrient for plant growth, and adequate Boron is necessary for proper absorption of macronutrients. It also plays a vital role in regulating plant hormone levels. It increases flower production and retention, pollen tube elongation and germination, and seed and fruit development. Deficiencies that might not seem to affect veg growth might show up in poor fruit, nut, and seed production, bud, and flower drop, and poor quality crops. Boron deficiencies, for example, can prevent maximum fruit sets. Boron has been proven to increase the transport rate of sugars and that it is essential for the healthy development of root nodules. Boron and Calcium are also involved in the cell wall structure, and Boron facilitates the movement of Calcium into and within plants.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-18 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-9 fl oz per acre

Plane:

1-21 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/1Ml3cDQ4bTPu_sfXybxMfoc5P8zON3Iav/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/13562 (OMRI Sheet)

Notes From Growers:

Anyone?

Eden BlueGold - Cal-King

Ingredients:

• BlueGold® Cal-King

Build A Soil Description:

OMRI Listed

For the Vegetative Cycles: Cal-King OMRI listed calcium source undergoes a micronization process which maximizes immediate bioavailability. Cal-King is formulated from Calcium Carbonate deposits found deep in the ocean. The ingredients are micronized via cold mechanical processes and have been proven to have a negative charge.

General:

Calcium is the second most important nutrient in your entire Nutrient lineup. No nutrient processes without sufficient Phosphate and sufficient Phosphate will not process unless there is sufficient Calcium.

Calcium that is applied only in the vegetative cycles sets the plant up for a huge flower cycle, as the season's cycle is now balanced with Calcium. Calcium applied in flowering cycles will push out Potassium levels causing leaf knife tip yellowing.

Additionally, the industry typically has low Cal-Mag issues, and generally, that starts with improper pH levels and carries into improper Calcium application ratios and times. There are many different types of Calcium, and their structure dictates its behavior in Agriculture.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-42 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-18 fl oz per acre

Plane:

32 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/1pcZBJkqroyUsrMnD4jPphjAPsutN Nygn/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/12636 (OMRI Sheet)

Notes From Growers:

Anyone?

<u>Eden BlueGold - Cobalt</u>

Ingredients:

• BlueGold® Cobalt

Build A Soil Description:

OMRI Listed

Our micronutrient Cobalt undergoes our Eden Synergy micronization process to maximize immediate bioavailability and is combined with our flagship BlueGold® technology. Derived from Cobalt Sulfate. BlueGold® Cobalt is for use with Cobalt-deficient plants. Micronutrients should only be applied in accordance with a plant sap and soil analysis.

General:

A lack of Cobalt can have significant effects on the health of plants, soil microbes, and surrounding wildlife. Wasting debilitating diseases were proven to be directly related to inadequate levels of bioavailable Cobalt (Frank et al. 2004). It is an essential nutrient in plants for the micro-organisms which fix atmospheric nitrogen in the plant's root nodules (Gad 2002).

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-18 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-9 fl oz per acre

Plane:

1-21 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/1Ds530NDXCEloLduSXB1W7SZsQ8 LZirQS/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/13689 (OMRI Sheet)

Notes From Growers:

Anyone?

Eden BlueGold - Copper

Ingredients:

• BlueGold® Copper

Build A Soil Description:

OMRI Listed

Our BlueGold® Copper undergoes our trade secret Eden Synergy micronization process maximizes immediate bioavailability and combines our Copper with our flagship BlueGold® technology. Blue Gold™ Copper should only be applied in accordance with a Plant Sap and Soil Analysis.

General:

Copper (Cu) is an essential micronutrient for plant life and is required for many Enzymatic activities in plants and Chlorophyll and seed production. The deficiency of Copper can lead to increased susceptibility to diseases. Soil application of Copper before seeding is most common, and efficiency is improved the smaller the particle size. There is a narrow range between copper deficiency and toxicity. Plant sap analysis must be used to monitor a critical and sensitive micronutrient like Copper.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-18 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-9 fl oz per acre

Plane:

1-21 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/1mMhPmFjTJdLwfatATzPtbcN5Ym1 CJrEB/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/13563 (OMRI Sheet)

Notes From Growers:

Anyone?

<u>Eden BlueGold - GRM Micros</u>

Ingredients:

• BlueGold® GRM Micros

Build A Soil Description:

OMRI Listed

BlueGold® GRM Micros is the industry's first 16+ Micronutrient Solution. Micronutrients are the spark plugs that run your field's engine. When they are off by tiny amounts, production suffers by vast amounts. BlueGold® GRM Micros immediately enhance plant sap micronutrient levels. GRM Micros are water-soluble Micronutrients infused and complexed in a Carbohydrate Solution.

General:

Micronutrients are essential for plant life and are required for many Enzymatic activities in plants and Chlorophyll and seed production. Deficiencies can lead to increased susceptibility to diseases, loss in production, and lowered BRIX (quality of taste). Not only is there a narrow range between micro deficiency and micro toxicity, but micronutrients (due to their low quantity) are extremely sensitive to proper ratios in the soil. Plant sap analysis must be used to monitor micronutrient levels.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-18 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-9 fl oz per acre

Plane:

1-21 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/13d2Nt4gBY8NR4WtK aR7hzCEu8
 Bzjn17/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/13521 (OMRI Cert)

Notes From Growers:

Anyone?

Eden BlueGold - Fusion Flower

Ingredients:

- BlueGold® Fusion Flower
- 7-4-2 (N-P-K)

Build A Soil Description:

For the Flowering Cycles: Fusion Flower 7-4-2, undergoes a micronization process that maximizes immediate bioavailability. Fusion Flower is formulated from Seabird Guano, Soft Rock Phosphate, Olivine, Biotite, Kelp Extract, Bat Guano, Sodium Nitrate, Soy Protein Hydrosylate,

Earthworm Castings, Sunflower Ash, Sodium Borate, Cobalt Sulfate, Copper Sulfate, Manganese Sulfate, Sodium Molybdate, Zinc Sulfate. Fusion Flower ingredients are micronized via cold mechanical processes.

General:

Proper nutrient levels are the backbone of any growth cycle. Deliverable Nutrition that is balanced PPM ratios for optimum uptake. Proven time and again at the University level, nutrient uptake is not a singular element-by-element event. Even though there may be abundant phosphate in the soil, not much will be uptaken without calcium levels. The deficiency of Boron is directly related to Magnesium problems even though there may be sufficient Magnesium levels.

The Earth is like a 250-count Crayon box, and when it comes time to replenish colors that have been used up, it requires more than just a 3-count Crayon box (NPK). Under this minimalist effort, eventually, your soil is going to run out of vital nutrients and suffer significantly from minimal production.

Usage:

Properly used in conjunction with a soil test.

Foliar:

8-32 fl oz per acre, minimum of 21 gallons of water

Fertigation:

3-8 fl oz per acre

Research:

• https://drive.google.com/file/d/1kgfyhyCdIXnSC79WnZmruNcFPVz FcEqm/view?usp=sharing (MSDS Sheet)

Notes From Growers:

Anyone?

Eden BlueGold - Fusion Veg

Ingredients:

- BlueGold® Fusion Veg
- 9-5-1 (N-P-K)

Build A Soil Description:

For the Vegetative Cycles: Fusion Veg 9-5-1 undergoes a micronization process that maximizes immediate bioavailability. Fusion Veg is formulated from a Soy Protein Hydrolysate, Sodium Nitrate, Bat Guano, Seabird Guano, Soft Rock Phosphate, Biotite, Sunflower Ash, Earthworm Castings, Calcium Carbonate, Sodium Borate, Cobalt Sulfate, Copper Sulfate, Manganese Sulfate, Sodium Molybdate, Zinc Sulfate. Fusion Veg ingredients are micronized via cold mechanical processes.

General:

Proper nutrient levels are the backbone of any growth cycle. However, something not discussed very often is Deliverable Nutrition which is balanced PPM ratios for optimum uptake. Proven time and again at the University level, nutrient uptake is not a singular element-by-element event. Even though there may be abundant Phosphate in the soil, not much will be uptake without Calcium levels. The deficiency of Boron is directly related to Magnesium problems even though there may be sufficient Magnesium levels.

The Earth is like a 250-count Crayon box, and when it comes time to replenish colors that have been used up, it requires more than just a 3-count Crayon box (NPK). Under this minimalist effort, eventually, your soil is going to run out of vital "co-pilot" nutrients and suffer significantly from minimal production.

Usage:

Properly used in conjunction with a soil test.

Foliar:

8-32 fl oz per acre, minimum of 21 gallons of water

Fertigation:

3-18 fl oz per acre

Research:

• https://drive.google.com/file/d/1yj1MjkKNyd6muk_orwZJGtd9lMQVkYPe/view?usp=sharing (MSDS Sheet)

Notes From Growers:

Anyone?

<u>Eden BlueGold - Iron</u>

Ingredients:

• BlueGold® Iron

Build A Soil Description:

OMRI Listed

Our BlueGold® Iron undergoes our trade secret Eden Synergy micronization process maximizes immediate bioavailability and combines our Iron with our flagship BlueGold® technology. BlueGold® Iron should only be applied in accordance with a Plant Sap and Soil Analysis.

General:

Iron (Fe) is an essential micronutrient for almost all living organisms because it plays a critical role in metabolic processes such as DNA synthesis, respiration, and photosynthesis. Many metabolic pathways are activated by Iron, and many enzymes require proper levels of Iron. An imbalance of Iron in the soil is directly related to plants that underproduce Chlorophyll. Low oxygen and CO2 result in plants that are not green. The function of Iron is just like that in the human bloodstream, to help carry essential elements through the circulatory system.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-42 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-18 fl oz per acre

Plane:

42 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/1KJwFX7TUQbKbENOTUJJ2ivJoLggRSeLo/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/13565 (OMRI Cert)

Notes From Growers:

Anyone?

<u>Eden BlueGold - Manganese</u>

Ingredients:

• BlueGold® Manganese

Build A Soil Description:

OMRI Listed

Micronutrient, BlueGold® Manganese undergoes our Eden Synergy micronization process to maximize immediate bioavailability and is combined with our flagship BlueGold® technology. Derived from Manganese Sulfate. BlueGold® Manganese is for use with manganese-deficient plants.

General:

Manganese (Mn) is an essential plant mineral nutrient and plays a crucial role in several processes, mainly photosynthesis. Manganese deficiency is a widespread problem and occurs most often in sandy soils or organic soils with a pH above 6.4. Deficient manganese crops exhibit symptoms like lower dry matter production and yields, weaker structural resistance against pathogens, and reduced tolerance to drought and heat stress.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-18 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-9 fl oz per acre

Plane:

21 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/1C-J Pm wfoYhldExayP5wDeG7rI OX-fL/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/13690 (OMRI Cert)

Notes From Growers:

Anyone?

Eden BlueGold - Mega Cal-Sil

Ingredients:

• BlueGold® Mega Cal-Sil, Calcium Silicate

Build A Soil Description:

OMRI Listed

There are many different forms of Calcium. BlueGold® Mega Cal-Sil is a Calcium Silicate, which is different than our BlueGold® Cal-King and BlueGold® C4-Calcium (Calcium Carbonates), which is more directly responsible for immediate proper Phosphate to Calcium ratios. BlueGold® Mega Cal-Sil is a Silicate form. Because it is naturally occurring, the Silicates can be more properly utilized in soil and plant that are both deficient in Calcium and Silica. Calcium Silicates help to build soil integrity for the long haul, where soil microbiology will have the time to process this original unmodified source into potent individual Calcium and Silica nutrients. BlueGold® Mega Cal-Sil is also used to address heavy metal and excess issues quickly.

BlueGold® Mega Cal-Sil undergoes our trade secret Eden Synergy process. This micronization process maximizes immediate bioavailability potential and combines the Magnesium source with our flagship Blue GoldTM technology. BlueGold® Mega Cal-Sil is formulated from Wollastonite rock and micronized via cold mechanical processes.

General:

Calcium is the Queen of all Minerals[™] while Phosphate is the King of Minerals[™]. No nutrient will process without a Phosphate from copilot. Calcium is directly responsible for the assimilation of Phosphate. Proper Phosphate uptake cannot occur without proper Calcium levels and vice versa.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-18 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-16 fl oz per acre

Plane:

21 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/1P5DJdkEIO6geYb-V5nelfKyoV3OHnjoM/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/12626 (OMRI Cert)

Notes From Growers:

Anyone?

Eden BlueGold - Moly

Ingredients:

• BlueGold® Sodium Molybdate

Build A Soil Description:

OMRI Listed

Our micronutrient Moly undergoes our Eden Synergy micronization process to maximize immediate bioavailability and is combined with our flagship BlueGold® technology. Derived from Sodium Molybdate. BlueGold® Moly is for use with moly-deficient plants. Micronutrients should only be applied in accordance with a plant sap and soil analysis.

General:

Molybdenum (Mo) is an essential micronutrient for plant life and is recommended in the production of most agricultural commodities. It is an important component of critical Enzymes that are responsible for controlling nitrogen metabolism and the synthesis of Phytohormones. It is required for the growth of most biological organisms, including plants and animals.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-18 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-9 fl oz per acre

Plane:

21 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/1iWagb2s9Q4bROt7FVLX1jegY0-31tAnQ/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/13624 (OMRI Cert)

Notes From Growers:

Anyone?

Eden BlueGold - pH UP/DOWN

Ingredients:

• BlueGold® ph Up/ph Down

Build A Soil Description:

OMRI Listed

BlueGold pH adjusting solutions harness the power of hydrogen in concentrate form, to give you a non-caustic super solution you can safely use without harming your skin, your nutrients, or your plants!

General:

Water today is slammed with chlorine, chloramine, perchlorates, carbonates, bicarbonates, fluorides, and hydrofluosilicic acid. When these are combined with nutrients and/or pH modifiers, they bond, cancel out, or complicate ionic exchanges. This makes pH changes difficult and can also cause "pH rebound". When extremely potent and caustic chemicals are used to change pH, this reinvents the same scenario on a massive scale (not including health concerns). Water is said to be the most studied molecule and yet it is said to be the least understood by mankind today. Eden BlueGold acid and alkali solutions are created from concentrated hydrogen. By splitting the water molecule through a trade secret Bio-Genesis process, BlueGold has achieved a dominating electrical (ionic) friendly solution that yields **Up - 13.6 to 14 pH** and **Down - 0.0 to 0.4 pH.** Non Caustic.

Usage:

Add the desired amount and wait 30-60 minutes for pH reading to stabilize

Research:

- https://drive.google.com/file/d/1hNoOoyXTU1x 2Sz2R1cOd L n-3 37gqV/view?usp=sharing (MSDS Sheet)
- https://drive.google.com/file/d/16XqhS9b34Hd4ryOL_k93vaoWWY https://drive.google.com/file/d/16XqhS9baadwaoWWY https://drive.google.com/file/d/16XqhS9baadwaowwy https://drive.google.com/file/d/16XqhS9baadwaowwy https://drive.google.com/f

Notes From Growers:

Anyone?

<u>Eden BlueGold - Selenium</u>

Ingredients:

• BlueGold® Selenium

Build A Soil Description:

Our BlueGold® Selenium undergoes our trade secret Eden Synergy micronization process which maximizes immediate bioavailability and combines our Selenium with our flagship BlueGold® technology. BlueGold® Selenium should only be applied in accordance with a Plant Sap and Soil Analysis, while some States allow its usage for deficiencies and in hydroponics.

General:

Selenium (Se) is a micronutrient under much scrutiny and indecisiveness for its benefits and risks. It is an essential nutrient; however, its range of PPM from benefit to risk is even smaller than with Copper. At low concentrations, Selenium can promote plant growth, and act as an antioxidant and defensive molecule against pathogens in plants. At too high concentrations, plants will show toxic symptoms like stunting of growth, chlorosis, withering, drying of leaves, and low protein synthesis.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-9 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-9 fl oz per acre

Plane:

21 fl oz. per 5 gallons of water

Research:

• https://drive.google.com/file/d/10WVnoJllx7dJ1Lhr-Jxrnc9KCfAwszOi/view?usp=sharing (MSDS Sheet)

Notes From Growers:

Anyone?

<u>Eden BlueGold - Silica</u>

Ingredients:

• BlueGold® Silica

Build A Soil Description:

OMRI Listed Liquid Micronized Pure Silica Quartz
Our BlueGold® Silica undergoes our trade secret Eden Synergy
micronization process which maximizes immediate bioavailability and
combines our Silica with our flagship BlueGold® technology. BlueGold®

Silica is formulated from an extremely Silica mine that is used in the computer industry to create microchips, which requires the purest forms of Silica. We process the raw Silica using only mechanical means, zero chemicals, acids, or solvents of any kind.

General:

Silica (Si), or as it is referred to on some labels as Silicon or Silica Dioxide, is a soil element that is associated with plant cellular structure, electrical exchanges, and nutrient-to-nutrient ionic bonding. It has also been associated with correcting hollow stem syndrome, in addition to increasing nutrient uptake. It is the most abundant element in soil, and yet it is referred to by plant biologists as a "non-essential beneficial plant nutrient." This is equivalent to the mentality of recognizing there are over 90 periodic elements essential to "perfect" growth, and yet stating you can grow "perfectly" with just only three of them (NPK) until the end of time. This incorrect mentality that has led to the lowest vitamin and mineral content in crops in the history of mankind is the same that led us to build the BlueGold® System of products to grow plants at maximum potential through the power of proper nutrition.

Usage:

Properly used in conjunction with a soil test.

Foliar:

16-64 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-16 fl oz per acre

Plane:

45-64 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/15bve55UaOtcPACrxO-mFcrJT3cuF SQzf/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/12924 (OMRI Cert)

Notes From Growers:

Anyone?

Eden BlueGold - Super-Carb

Ingredients:

• BlueGold® Super-Carb

Build A Soil Description:

OMRI Listed

Using only Certified Organic ingredient sources, Eden BlueGold has taken non-surfacted Blackstrap Molasses and complexed it with Sugar Cane Juice, Tapioca Syrup, and Coconut Syrup. This blend is combined with BlueGold saponin wetting agent technology which stabilizes the sugars, prevents them from taking off from inherent biology, crystallizing, and prevents the growth of anaerobic bacteria. The perfect alternative to salts and chemical preservatives.

General:

Carbohydrates are a significant component of organic matter in all soils. Proper Carbohydrate levels should account for 5 to 20 percent of soil organic matter. Not only do Carbohydrates comprise 50 to 70 percent of dry-weight plant matter, but it is an essential constituent of soil microbiology, both as structural and as cellular components fulfilling metabolic roles. Microorganisms degrade Carbohydrates into metabolizable substances, which are most readily available for soil organisms. Plant-derived sugars serve as a significant source of energy and Carbon for soil biology. The survival of aerobic bacteria in soil is entirely dependent on moisture, aeration, proper pH, and plenty of food (Carbohydrates).

Usage:

Properly used in conjunction with a soil test.

Foliar:

16-64 fl oz per acre, minimum of 21 gallons of water

Fertigation:

8-32 fl oz per acre

Plane:

45 fl oz. per 5 gallons of water

Root Zone:

1-2 ml per gallon

Veg Foliar:

10 ml per gallon

Flower Foliar:

15-30 ml per gallon

Research:

- https://drive.google.com/file/d/1_psgi9nrzVqqDc28jyAajeGzYrMkagtA/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/13504 (OMRI Cert)

Notes From Growers:

Anyone?

Eden BlueGold - SuperMag

Ingredients:

• BlueGold® SuperMag

Build A Soil Description:

OMRI Listed Liquid Micronized Magnesium Silicate
Our BlueGold® Super Mag undergoes our trade secret Eden Synergy
micronization process which maximizes immediate bioavailability and
combines the Magnesium source with our flagship BlueGold® technology.
BlueGold® Super Mag is formulated from Olivine rock. The BlueGold®
Super Mag olivine is micronized via cold mechanical processes.

General:

Magnesium is the central core of the Chlorophyll molecule in plant tissue. If Magnesium is deficient, there will be a shortage of Chlorophyll, and the plant growth will be stunted. Magnesium also helps activate Enzyme systems. While Magnesium inputs usually come in caustic forms like Magnesium Sulfate, we have found success in using Olivine, a potent naturally occurring Magnesium source, especially when Silica nutrients are also needed.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-21 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-9 fl oz per acre

Plane:

21 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/11uYCdgzOahJ3Xc4DKcOSfpXyrvXd MIfQ/view (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/12923 (OMRI Cert)

Notes From Growers:

Anyone?

Eden BlueGold - SuperPhos

Ingredients:

• BlueGold® SuperPhos

Build A Soil Description:

OMRI Listed

Super Phos 23 undergoes a micronization process that maximizes immediate bioavailability. Super Phos 23 is formulated from a Soft Rock Phosphate mine and is OMRI Listed. Typical Rock Phosphate is hard rock, and generally, powderization is achieved through combined efforts of mechanical crush, acid treatment, and chemical treatment. Eden BlueGold has located a Soft Rock Phosphate mine which requires zero of those above as it is pulled from the mine in a powder form already. Soft Rock Phosphate is a step further in the direction of pure and clean-sourced ingredients.

General:

Phosphate (P) is an essential nutrient for plant growth in vegetative and flowering cycles. No nutrient can process without a Phosphate, and proper Phosphate levels are dependent upon proper levels of Calcium and Potassium. When proper levels of Phosphate exist, plants are known to have maximum flower density. Phosphate is the king of all nutrients. Additionally, enhanced reproductive cycles begin with proper Phosphate levels. Properly set up plants during vegetative cycles with Phosphate, Calcium, and Potassium will set up the plants for increased size, density, weight, and taste. Properly balanced nutrition is the key to massive production.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-42 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-9 fl oz per acre

Plane:

32 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/15WT32wUq24ntJnF 7d8nEjMukf U-cnEy/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/12631 (OMRI Cert)

Notes From Growers:

Anyone?

Eden BlueGold - Zinc

Ingredients:

• BlueGold® Zinc

Build A Soil Description:

OMRI Listed

Micronutrient, BlueGold® Zinc undergoes our Eden Synergy micronization process to maximize immediate bioavailability and is combined with our flagship BlueGold® technology. Derived from Zinc Sulfate. BlueGold® Zinc is for use with zinc-deficient plants.

General:

Zinc (Zn) is an essential micronutrient for plant life and is recommended in the production of most agricultural commodities. It is a vital component for critical enzymes that are responsible for controlling metabolic reactions in all crops. Carbohydrate, Protein, and Chlorophyll formation are remarkably reduced in zinc-deficient plants.

Usage:

Properly used in conjunction with a soil test.

Foliar:

1-18 fl oz per acre, minimum of 21 gallons of water

Fertigation:

1-9 fl oz per acre

Plane:

21 fl oz. per 5 gallons of water

Research:

- https://drive.google.com/file/d/1TkrU-G67fhOpKoWKsuwD5ScVPj m3FvB9/view?usp=sharing (MSDS Sheet)
- https://www.omri.org/mfg/eds/certificate/13693 (OMRI Cert)

Notes From Growers:

Anyone?

EM Bokashi

Ingredients:

Active:

- Microorganisms: 1 million colony forming units/cc (units/ml)
 1%:
- Lactic Acid Bacteria

- Yeast
- Photosynthetic Bacteria

Inactive:

- 96% Water
- 3% Molasses

Build A Soil Description:

Bokashi is a Japanese term meaning fermented organic matter. Bokashi thrives due to the high levels of antioxidants and minerals in rice bran, creating the highest quality bokashi.

Bokashi is saturated with beneficial microorganisms and is commonly used for food waste recycling, odor control for pet waste, and to accelerate compost and plant residue and mulch decomposition. It can also be used in portable toilets, waterless toilets, and added to potting soil mixes.

Its an all-natural and fermented blend of EM® probiotics and organic rice bran and can be used to kickstart healthy organic matter breakdown, absorption of liquids and odors, and to add a healthy boost to your recycling —right in your kitchen compost bin

General:

EM® Bokashi breaks down organic waste and matter in compost bins, gardens, and soil—creating healthy soil and releasing vital nutrients for plants. Not only does EM® Bokashi kickstart the composting process, but it also creates less CO2 and retains more food waste nutrients—which means higher-quality organic compost for your garden soil, lawn, and plants.

Usage:

EM Bokashi can be added directly to potting soil or garden beds. Just sprinkle over top.

Fermenting Food Wastes:

Use our food waste recycling buckets.

Sprinkle Bokashi on fresh food wastes as they are added to the bucket to ferment.

Kitty litter directions:

Add two cups of Bokashi to the fresh litter for odor control. Add 1 cup of Bokashi per week between litter box changes to maintain freshness and extend the life of the litter.

Research:

- https://www.planetnatural.com/composting-101/indoor-composting/bokashi-composting/ (Bokashi Rundown)
- https://www.researchgate.net/profile/Margit-Olle-2/publication/343
 914609 Review Bokashi technology as a promising technology
 for crop production in Europe/links/60befbc0299bf10dffa6500f/
 Review-Bokashi-technology-as-a-promising-technology-for-crop-production-in-Europe.pdf (Review: Bokashi technology as a promising technology for crop production in Europe)

Notes From Growers:

Anyone?

EM 1 Microbial Inoculant

Ingredients:

Active:

- Microorganisms: 1 million colony forming units/cc (units/ml)
 1%:
- Lactic Acid Bacteria
- Yeast
- Photosynthetic Bacteria

Inactive:

- 96% Water
- 3% Molasses

Build A Soil Description:

EM-1 Microbial Inoculant is a naturally-fermented, live microbial blend of beneficial food-grade microorganisms. EM-1 Microbial Inoculant is a safe probiotic for all plants, soils, cut flowers, fish ponds, composting, and deodorizing.

General:

Great Microbial Treatment for all plants (flowers, veggies, trees, etc.), compost, and soils.

Improves Soil Structure and Drainage

Bioremediation Bacteria Eliminate Foul Odors In The Home (Pets, Smoke, Garbage, Drains, Paint, etc.)
Improves Water Quality In Aquariums, Ponds, and Rivers
Effective Soil Conditioner

Usage:

Foliar/Drench:

1 oz per gall of water Best used once a week

Research:

- https://www.frontiersin.org/articles/10.3389/fpls.2020.00633/full Rhizospheric Organic Acids as Biostimulants: Monitoring Feedbacks on Soil Microorganisms and Biochemical Properties)
- https://www.sciencedirect.com/science/article/abs/pii/Soo38071716304151 (Breif Synopsis)
- https://www.infrc.or.jp/wxp/wp-content/uploads/KNFC/KNFC1/KNFC1/KNFC1-5-4-Higa-Kinjo.pdf (Effect of Lactic Acid Fermentation Bacteria on Plant Growth and Soil Humus Formation)

Notes From Growers:

Anyone?

Epsom Salt (Magnesium Sulfate Heptahydrate)

Ingredients:

Active:

- Microorganisms: 1 million colony forming units/cc (units/ml)
 1%:
- Lactic Acid Bacteria
- Yeast
- Photosynthetic Bacteria

Inactive:

- 96% Water
- 3% Molasses

Build A Soil Description:

This agricultural grade Epsom Salt - Magnesium Sulfate is great for providing your plants with essential minerals. Most plants need nutrients like magnesium and sulfur to stay in good health, and Magna Grow makes the primary nutrients in most plant foods (nitrogen, phosphorus, potassium) more effective. Magnesium sulfate crystals, when added to the soil, provide vital nutrients that help prevent yellowing leaves and the loss of green color (magnesium is an essential element in the chlorophyll molecule) in plants.

Usage:

Houseplants:

2 tablespoons per gallon of water; feed plants monthly.

Roses:

1 tablespoon per foot of plant height per plant; apply every two weeks. Also, scratch 1/2 cup into the soil at the base to encourage flowering canes and healthy new basal cane growth. Soak unplanted bushes in 1 cup of Epsom Salt per gallon of water to help roots recover. Add a tablespoon of Epsom Salt to each hole at planting time.

Shrubs (evergreens, azaleas, rhododendron):

1 tablespoon per 9 square feet. Apply over root zone every 2-4 weeks.

Lawns:

Apply 3 pounds for every 1,250 square feet with a spreader, or dilute in water and apply with a sprayer.

Trees:

Apply 2 tablespoons per 9 square feet. Apply over the root zone 3 times annually.

Garden Startup:

Sprinkle 1 cup per 100 square feet. Mix into soil before planting.

Research:

- https://www.epsomsaltcouncil.org/gardening/epsom-salt-for-gardening/ (Epsom Salt in the Garden)
- http://anz.ipni.net/ipniweb/region/anz.nsf/0/F24E5030C8A990F8
 CA257F570024EE15/\$FILE/Soil%20and%20Fertilizer%20Magnesium
 m.pdf
 (Soil and Fertilizer Magnesium)

Notes From Growers:

Anyone?

Essential Oil Blend

Ingredients:

- <u>27.77% Rosemary Oil</u> Camphor Type Spain (a-pinene: 20.60%, Camphene: 12.9%, Mircene: 4.0%, Limonene: 3.4%, 1.8-Cineol: 22.65%, Camphor: 19.70%, Linalool: 0.6%)
- 27.77% Eucalyptus Oil Globulus- Australia/S. Africa (1,8-Cineole % (m/m): 92.17, a-Pinene % (m/m): 1.44, b-Pinene % (m/m): 0.83, Sabinene % (m/m): 0.10, a-Phellandrene % (m/m): 0.09, Limonene % (m/m): 1.26
- <u>27.77% Lemongrass oil</u> India (myrcene, citronellal, geranyl acetate, nerol, geraniol, neral and traces of limonene and citral)
- <u>5.55% Thyme Red Thymol</u> Spain (a-thujone, a-pinene, camphene, b-pinene, p-cymene, a-terpinene, linalool, borneol, b-caryophyllene, thymol and carvacrol.)
- <u>5.55% Clove Stem</u> Madagascar (Eugenol.......94.73, Beta-caryophyllene...3.63%, Acetate d'eugenyle....0.78%)
- <u>5.55% Ginger</u> India (Ginger is high in Citral along with 477 other constituents)

Build A Soil Description:

When choosing the blend I went with the oils most often mentioned for potency with Mites, Mildews, Molds and our General Purposes for Indoor Gardening. Out of the list of possible oils, I also chose the most affordable oils over the most expensive so long as the reports indicate they were equally effective for our use. Once I found the most potent and economical oils, I then took the selection a step further and chose the region and type of oil that was highest in the particular constituents we were after. For instance, Clove Oil could be from several regions and also from different parts of the plant. I chose Clove Stem because it showed the highest amount of Eugenol of the other varieties of clove oil.

Usage:

MIX AT .25 TO .50 OUNCE PER GALLON

Because this is an oil you must use an emulsifier, we recommend that you use Agsil16H, Yucca, Aloe, or Dr. Bronners Soap.

If you don't know how to emulsify check out this <u>video</u> or send us a message.

Don't use it on small seedlings.

Research:

- https://www.mdpi.com/1420-3049/25/7/1556/htm (Essential Oils Extracted from Different Species of the Lamiaceae Plant Family as Prospective Bioagents against Several Detrimental Pests)
- https://www.frontiersin.org/articles/10.3389/fagro.2022.876687/ful <a href="legt: legt: leg
- https://www.frontiersin.org/articles/10.3389/fagro.2021.763530/ful-1 (New Insights Into Biopesticides: Solid and Liquid Formulations of Essential Oils and Derivatives)

Notes From Growers:

Smells awesome like licorice, don't use with sulfur foliar products or while the sun is shining, will fry your plants.

Explorer 16-0-0

Ingredients:

- <u>27.77% Rosemary Oil</u> Camphor Type Spain (a-pinene: 20.60%, Camphene: 12.9%, Mircene: 4.0%, Limonene: 3.4%, 1.8-Cineol: 22.65%, Camphor: 19.70%, Linalool: 0.6%)
- 27.77% Eucalyptus Oil Globulus- Australia/S. Africa (1,8-Cineole % (m/m): 92.17, a-Pinene % (m/m): 1.44, b-Pinene % (m/m): 0.83, Sabinene % (m/m): 0.10, a-Phellandrene % (m/m): 0.09, Limonene % (m/m): 1.26
- <u>27.77% Lemongrass oil</u> India (myrcene, citronellal, geranyl acetate, nerol, geraniol, neral and traces of limonene and citral)
- <u>5.55% Thyme Red Thymol</u> Spain (a-thujone, a-pinene, camphene, b-pinene, p-cymene, a-terpinene, linalool, borneol, b-caryophyllene, thymol and carvacrol.)
- <u>5.55% Clove Stem</u> Madagascar (Eugenol.......94.73, Beta-caryophyllene...3.63%, Acetate d'eugenyle....0.78%)

• <u>5.55% Ginger</u> - India (Ginger is high in Citral along with 477 other constituents)

Build A Soil Description:

purest form of soy protein nitrogen on the market today.

Unlike other manufacturers, we have a very controlled, one-source manufacturing process in Malaga, Spain to maintain quality control, and continually improve the manufacturing process to drive purity. Depending on the scientific method used for analysis, Ferticell® Explorer is a minimum of 98.6% pure with the remaining "impurities" being moisture content.

Ferticell® Explorer 16-0-0 has a much higher carbon content compared to competitors' soy protein nitrogen products, giving Explorer a much richer, darker, color. Carbon, a fundamental component of life, is essential to plants, soil, and soil microorganisms. It has been said that "Healthy Microorganisms = Healthy Soil = Healthy Plants = Greater Yields", and carbon is the chain that forms the bridge between each of those.

Our soy protein nitrogen [link to technical N article], Explorer 16-0-0 carries an additional carbon component to bring nutrients to soil microbes and into the plants themselves. Because plants and microbes are, essentially, carbon processors, our carbon-complexed hydrolysate nutrients are taken in faster and more effectively than other protein fertilizers. With the 98.6% amino acid content, the Explorer products with a unique and proprietary ratio, of balanced cell extracts that are vital to life, delivering a positive plant response that is more efficient than the alternative products.

In 2011, Agroplasma Inc.® was the first fertilizer company to register a soy protein nitrogen in the organic fertilizer market. Introducing Ferticell® Explorer Plant Protein Nitrogen 13-0-0 to the market revolutionized the organic fertilizer industry, allowing growers to get an immediate boost of N, without the risks associated with animal and compost inputs.

The penetration of active ingredients (amino acids and peptides) into internal structures of PH-treated plants is crucial since PHs based biostimulants are usually foliar applied (Colla et al., 2015a; Yakhin et al., 2017).

In addition to the carbon and amino acids, the nitrogen content is 15% higher on organic nitrogen, and 51% higher on nitrate nitrogen, allowing for a quick, stable, and efficient release of nutrients to the plant and soil microbes, increasing the efficiency of production within the plant.

Unlike Ferticell®, our competitors are not single-sourced, nor do they have ownership of their facility, they have multiple brokerage practices that will not protect or insure quality, leading to impurities of the actual product and less refinement.

In the analysis you will see that starting with the moisture content, their product is carrying 4.44% by v/v of water weight, so in a bag of their product, you are only getting 95.56% of your monies worth. Additionally, in the amino acid comparison, their product is 20.8% deficient of amino acids, these alterations in optimum levels of essential amino acids (below 95%) may create a limitation in amino acid performance opening the way for decreased plant disease immunity. Also when you have such a significant deficiency, it creates allowances for impurities, (See Figure C). Due to this allowance of impurities, their product is not 100% soluble like Ferticell® Explorer 16-0-0 or Ferticell® Explorer Liquid 10-0-0[link to explorer liquid].

General:

16% Protein Nitrogen content

100% Water soluble

Will not leach from most soils

Enzyme hydrolysis process produces a 100% water-soluble

Nitrogen-containing compounds of protein, peptides, and amino acids Contains 50% carbon

Compatible with all conventional Nitrogen sources and most fertilizers Stable in normal environmental temperatures and requires no special handling

Reliable release curve in all environmental conditions

Contains no fossil fuel based Nitrogen sources

Natural product with no negative environmental impact

User-friendly, safe for employees to handle

High carbon content makes excellent food source for soil biology

No risk for tip burn normally associated with nitrates or volatilization of ammonia

Usage:

Blend with conventional nitrogen to lower total N requirements Stand-alone product for use under high temperatures and environmental stress

Reduced requirements for additional plant stimulants or hormones Explorer protein will reduce the demand for fossil fuel-produced fertilizers and support environmentally sound statements for consumer

1-2 TBSP per gallon of water as **root drench or foliar** application to give boost of N.

Research:

• https://cdn.shopify.com/s/files/1/0248/9641/files/Explorer16-0-0
SDS.pdf?16651530803289928407 (SDS Sheet)

Notes From Growers:

Smells awesome like licorice, don't use it with sulfur foliar products or while the sun is shining, will fry your plants.

F

Fenugreek Seed

Ingredients:

• Fenugreek Seed

Build A Soil Description:

Build a Soil doesn't have a description yet, but I did some digging. Fenugreek contains sapogenins, which are the non-polysaccharide family member of saponins. Sapogenins contain the framework for triterpenes, the framework for all steroids. These steroids are either key components of cell membranes or signaling molecules that activate steroid hormone receptors. My speculation is that fenugreek could be used early in growth to illicit more distinct signs of plant sex. Other than that these steroids triterpenes can form triterpenoid saponins, a compound produced by the

plant for self-defense. This means you can likely soak, or grind and soak, the seeds and bubble in a tea to get a plant defense tea, like Emergen-C. I'd love to see how close I am when they release the description.

Usage:

Tea?

Plant defense
Force signs of plant sex
Grind and top dress?
Plant defense

Force signs of plant sex

Research:

- https://en.wikipedia.org/wiki/Triterpene (Triterpenes)
- https://www.hort.purdue.edu/newcrop/med-aro/factsheets/FENUGREEK.html (Fenugreek brief tech sheet)

Notes From Growers:

Anyone?

Ferti-Fulvic Plus

Ingredients:

• Derived from plants with a 90% (min.) content of organic fulvic acid

Build A Soil Description:

Derived from plants with a 90% (min.) content of organic fulvic acid. Its chelating effect and physiological and biological activity give the plant much-needed stimulation, especially through the roots. Highly recommended for fertigation in the presence of hard waters, since calcium, which precipitates in the presence of humic acids, remains in the solution when fulvic acids are present.

General:

Accelerates production of nucleic acids Enhances photosynthesis and respiration Increases cationic exchange Effect on plants:

Enhances plant immunity for better stress management and overall health

Accelerates the production of nucleic acids
Enhances photosynthesis and respiration.
Prevents NPK from leaching
Increases total cationic exchange and improves aeration conditions
Makes aggregates in the soil produce better-oxygenated penetration.

Usage:

Foliar Spray is best. Mix with Aminos and Seaweed too!

1-4 lbs per acre1-2 teaspoons per gallon of water

Research:

- https://www.frontiersin.org/search?query=fulvic+acid&tab=top-results (Good start point)
- https://www.harvestgrow.com/.pdf%20web%20site/Humates%20General%20Info.pdf (ORGANIC MATTER, HUMUS, HUMATE, HUMIC ACID, FULVIC ACID AND HUMIN: THEIR IMPORTANCE IN SOIL FERTILITY AND PLANT HEALTH)

Notes From Growers:

Anyone?

Ferti-Nitro Plus Plant Nitrogen

Ingredients:

• Derived from soy protein with a guaranteed minimum of 13.62% plant available nitrogen

Build A Soil Description:

A water-soluble powder produced enzymatically, without animal by-products. A non-toxic, non-polluting, and vegan plant nutrient. Derived from non-GMO soy protein with a guaranteed minimum of 13.62% plant-available nitrogen and a high amino acid content of 80%. Ideal for nitrogen-deficient crops. Recommended for organic agriculture use and as a chemical-free fertilizer. Perfect for environmentally friendly practices.

General:

60-68 grams of readily available plant-based nitrogen per pound Certified CDFA Organic Input Material, OMRI Listed and approved for use on any CCOF farm

No soil leaching, plant burn, or salt accumulation Organic, natural plant-based form of nitrogen Improved inorganic and organic nitrogen uptake

Usage:

Foliar Spray

4-9 lbs per acre

1 - 2 Tablespoons per gallon water

Research:

• https://cdn.shopify.com/s/files/1/0248/9641/files/FN-Plus-Tech-sheet-1.pdf?17294360941441230060 (Tech Sheet)

Notes From Growers:

Anyone?

Ferti-Soluble Humic Acid

Ingredients:

• Dark black humate derived from leonardite with at least 75% humate content.

Build A Soil Description:

OMRI-Listed, organic, dark black humate derived from vegetable origin, with a 70% minimum humate content. Helps break compacted soils, allowing for improved water penetration. Adds essential organic material to sandy soils to help them retain water and vital plant nutrients.

General:

Improves nutrient uptake
Increases chlorophyll synthesis
Increases beneficial microbial activity
Healthier plants and improved yields
Increases root vitality
More readily available nutrients

Usage:

Foliar:

1-7 lbs per acre0.25-1.5 Tablespoons per gallon

Drip irrigation:

4-9 lbs per acre1-2 Tablespoons per gallon

Research:

- https://cdn.shopify.com/s/files/1/0248/9641/files/Soluble-HA-tech-sheet10.pdf?445395240140928383 (Tech Sheet)
- https://www.harvestgrow.com/.pdf%20web%20site/Humates%20General%20Info.pdf (ORGANIC MATTER, HUMUS, HUMATE, HUMIC ACID, FULVIC ACID AND HUMIN: THEIR IMPORTANCE IN SOIL FERTILITY AND PLANT HEALTH)
- https://www.frontiersin.org/search?query=humic+acid&tab=top-results (Good starting point)

Notes From Growers:

Anyone?

Ferti-Soluble Seaweed Extract

Ingredients:

- Derived from fresh sea kelp called alga
 - Ascophyllum nodosum

Build A Soil Description:

An OMRI listed and CDFA Organic Input Material approved water-soluble powder derived from fresh seaweed (Ascophyllum nodosum). A non-toxic, non-polluting fertilizer rich in microelements, with no synthetic hormones. Ideal for organic farming practices. Encourages thriving root, stem, and foliage growth as well as larger flowers and fruits, making it a potent plant booster.

General:

Better root systems Greater resistance to stress Improved soil structure and water-holding capacity

Usage:

Foliar:

400 grams/acre
100 grams/gall of water
Fill half the spray tank
with water, begin agitating, and gradually add
recommended amount with the remainder of
water and spray solution. Use enough water
for good spray coverage. The foliar spray
should be applied as a fine mist, with low
fluid velocity until the foliage is drenched. Do
not foliar apply during times of moisture or
heat stress. For best results, apply during
the cool part of the day or when
temperatures are below 85 F. Do not spray
just before or after rainfall or sprinkler
irrigation.

Root/drip irrigation:

900 grams/ acre 200 grams/ acre

Soil applied treatments can be made by mixing with directed sprays to the soil, side-dress treatments, and applications through the irrigation systems or other methods which effectively apply Soluble Seaweed Extract to the soil. When making irrigation treatments dilute 1 part Soluble Seaweed Extract with at least 5 parts water before adding to the supply tank. Continuous agitation of the supply tank is recommended. Can be applied through drip, microjet, sprinkle, overhead, furrow, flood, and other types of irrigation at the suggested rates. For micro sprinklers, solid

sets, or drip irrigation, apply after the system is fully pressurized. Inject for at least one hour followed by clean water for at least two hours to clear the system of all products. Avoid heavy irrigation following application that may leach material beyond the root system of the crop

To encourage root growth of new transplants

Treat roots at the rate of 0.6 to 1.5 dry ounces per 20 gallons of water prior to transplanting

Research:

- https://cdn.shopify.com/s/files/1/0248/9641/files/Soluble-SW-Extract-tech-sheet-1.pdf?16986168169709131486 (Tech Sheet)
- https://www.researchgate.net/profile/Ali-Sabir-7/publication/26339 1791 Vine growth yield berry quality attributes and leaf nutrie nt content of grapevines as influenced by seaweed extract Asc ophyllum nodosum and nanosize fertilizer pulverizations/links/6 12e03ba0360302a006cbfco/Vine-growth-yield-berry-quality-attributes-and-leaf-nutrient-content-of-grapevines-as-influenced-by-seaweed-extract-Ascophyllum-nodosum-and-nanosize-fertilizer-pulverizations.pdf (Vine growth, yield, berry quality attributes and leaf nutrient content of grapevines as influenced by seaweed extract (Ascophyllum nodosum) and nanosize fertilizer pulverizations)

Notes From Growers:

Anyone?

Fish Bone Meal

Ingredients:

- Wild Caught
- NPK 4-17-0

Build A Soil Description:

Fish Bone Meal is the preferred source of phosphorus and also has calcium with a small amount of nitrogen.

Fish Bone Meal is preferred because it doesn't come from animals treated with antibiotics, hormones, etc.

Use it as a top dress in transition or as a component of your mix.

General:

Accelerates production of nucleic acids

Enhances photosynthesis and respiration

Increases cationic exchange

Effect on plants:

Enhances plant immunity for better stress management and overall health Accelerates the production of nucleic acids

Enhances photosynthesis and respiration.

Prevents NPK from leaching

Increases total cationic exchange and improves aeration conditions Makes aggregates in the soil produce better-oxygenated penetration.

Usage:

1/2 Cup Per cubic foot is recommended dosage or top dress a handful before flower.

(Cubic foot is about 7.5 gallons of soil)

Research:

• ?

Notes From Growers:

Anyone?

Fish Bone Meal Flour

Ingredients:

- Wild Caught
- NPK 4-17-0

Build A Soil Description:

An excellent source of Phosphorous. This Fish Bone Meal has been micronized making it the best option when making compost teas.

Fish Bone Meal is the preferred source of phosphorus and also has calcium with a small amount of nitrogen.

Fish Bone Meal is preferred because it doesn't come from animals treated with antibiotics, hormones, etc.

Use it as a top dress in transition or as a component of your mix.

General:

Accelerates production of nucleic acids

Enhances photosynthesis and respiration

Increases cationic exchange

Effect on plants:

Enhances plant immunity for better stress management and overall health Accelerates the production of nucleic acids

Enhances photosynthesis and respiration.

Prevents NPK from leaching

Increases total cationic exchange and improves aeration conditions Makes aggregates in the soil produce better-oxygenated penetration.

Usage:

1/2 Cup Per cubic foot is recommended dosage or top dress a handful before flower.

Research:

• ?

Notes From Growers:

Anyone?

Fish Hydrolysate (Organic Gem)

Ingredients:

- Wild Caught
- NPK 4-17-0

Build A Soil Description:

All-natural liquid fish fertilizer manufactured by Advanced Marine Technologies and is a high-quality organic product that gives excellent plant growth, rebuilds soil, and offers higher production yields uses a unique enzymatic cold process that produces a hyper-active bio-stimulant different from anything else on the market today and is made from an aquatic renewable raw material source that is both fresh and clean.

General:

Plant Health

Gives long-lasting results with improvements in plant color, overall health, and tremendous growth.

Soil Health

Soil qualities are improved for deeper rooting and better penetration of water and nutrients. Unproductive soil is can be rebuilt and replenished.

Microbial Activity

Promotes the growth of bacteria and other organisms as well as providing supplementary macro and micronutrients.

Usage:

Directions For Growers & Commercial Agriculture

Agitate (shake well) before adding water. It is important to agitate Organic Gem well to ensure a homogenous product mix, particularly if it has been stored below 32° Fahrenheit.

Add water. See "Dilution Rates" below for specific uses. Extra water is not harmful since it acts as a carrier. The amount of water may be adjusted upwards to suit your equipment and the amount of leaf surface on plants. Mix well. After adding water, it is important to agitate (shake well) again. Be sure to use all material that has been mixed with water. Do not store diluted material.

Do not apply Organic Gem when the soil temperature is below 45° Fahrenheit, as the product will not activate. Apply at (or just before) 45°F is reached in the soil.

Dilution Rates For Growers & Commercial Agriculture Foliar Applications:

Use 1-gallon Organic Gem to 50 gallons of water. Spray after sunset or during the coolest part of the day.

Soil Applications:

Use 1-gallon Organic Gem with sufficient water to cover the intended area. The minimum dilution rate is 1 part Organic Gem to 15 parts water, sprayed with seed or side-dressed with seed.

Aerial Spraying:

Use 1-gallon Organic Gem to 15 gallons of water.

Seedlings or Transplants:

Dip in a solution of 4 oz. Organic Gem to 1gallon water, then plant.

Research:

- https://youtu.be/cq-dmZoplKE (Organic Gem growing beneficial Microbes under a microscope watch below. Video Courtesy of Tim Wilson aka MicrobeMan)
- https://www.sciencedaily.com/releases/2015/03/150325135149.htm (Hydrolyzed fish fertilizer tested in organic vegetable production)

Notes From Growers:

Anyone?

Fish Meal

Ingredients:

• Fish Meal

Build A Soil Description:

Stimulates vigorous growth and deep green color! A strong natural source of nitrogen, Organic Fish Meal is uniquely processed to retain maximum nutritional value without using high temperatures or synthetic chemicals. Applied to leaves it is assimilated quickly by plants. Often combined with kelp extract to enhance performance.

General:

A strong source of natural nitrogen (9%) Slow release — feeds plants over a period of time Low temperature processed to preserve plant nutrients Promotes vigorous growth during all stages of plant development Heavy feeders like corn, leafy greens and eggplant love it!

Usage:

For soil building or applying as a top dress, use at a rate of 1/2 cup per cubic foot of soil.

(Cubic foot is about 7.5 gallons of soil)

Research:

• https://www.kjssf.org/articles/xml/8Dww/ (Effects of Fish-Meal Application on the Growth of Chinese Cabbages (Brassica Campestris L.) and Soil Chemical Properties)

Notes From Growers:

Anyone?

Formula EM-5 (All Natural Garden Cleaning Concentrate)

Ingredients:

- Purified Water
- Organic EM-1
- Organic Apple Juice Concentrate
- Organic Grape Alcohol
- Organic Yucca Extract
- Organic Apple Cider Vinegar
- Organic Peppermint Essential Oil

Build A Soil Description:

Formula EM-5 is a versatile tool in your garden and is typically home made. We realized that most gardeners needed Formula EM-5 when it was already too late for them to start brewing it all up and fermenting it. After we realized this we set out to create a product that would only include the very best ingredients and be shelf stable. Below we provide the recipe to make your own for free but have found that most people prefer to purchase our Pre-Made and Shelf-stable version instead.

General:

As always, we are giving you the recipe to make your own spectacular homemade plant wash. The fermentation extracts properties out of plant materials and alcohol and retains them in the liquid. The EM1 in the recipe is the fermentation catalyst. This is an all-natural concoction that can be made by anyone and is not harmful to humans or animals. It combines water, EM1, a distilled spirit, molasses, and vinegar. The most successful programs with BAS Plant Wash involve alternating its applications with Activated EM1 and EMFPE. The essential oils that are the active ingredient in the BAS Plant Wash are exempt from EPA registration as a minimum-risk pesticide.

The formula for one gallon of EM5 is as follows (1:1:1:1:20):

3/4 C EM1

3/4 C Molasses

3/4 C Vinegar (white or apple cider)

3/4 C distilled alcohol (vodka, whiskey, tequila)

Add some other plant material (fresh hot peppers or garlic...or fresh herbs that have known pesticide properties like mint leaves, lavender, eucalyptus, Mella Luca, neem, etc.)

Fill the gallon container with warm water (110-120°F)

Seal and ferment until pH goes below 4.0

Spray EM5 alternately with EM1 or Fermented Plant Extract through a hose-end sprayer.

Usage:

Often people will set up an informal program as follows (Diluting the AEM1, EM5, or EM FPE with 500 parts water):

Week One: Apply AEM1, 1 gallon for 1/2 acre property Week Two: Apply EM5, 1 gallon for 1/2 acre property Week Three: Apply EM FPE, 1 gallon for 1/2 acre property Week Four: Apply AEM1, 1 gallon for 1/2 acre property

This pattern is repeated throughout the growing season.

Foliar Spray:

Use 1 ounce per gallon for normal.

Use up to 8 ounces per gallon for problems such as the growth of algae, odor-causing bacteria, and mold stains.

Use as a general household cleaner for any purpose.

Research:

• ?

Notes From Growers:

Anyone?

G

GAS Mix (Gascanastan' Custom Mix)

Ingredients:

- <u>Kelp Meal</u>
- Crustacean Meal
- Fish Meal
- Neem Cake
- Rolled Oats
- Karanja Cake
- <u>Dried Molasses Powder</u>
- Basalt
- <u>Ferti-Soluble Humic Acid</u>
- Gypsum
- Oyster Shell Flour

Build A Soil Description:

Gascanastan is part of the original BuildASoil story. Gas and MGD have taught me how to grow in living organic soil since before I even knew what Living Organic Soil was. When I first started learning it was because of the Famous IG thread Living Organic Soil Start through Recycling and Gas, Coot, MicrobeMan, and all that were heavy in it.

Usage:

Suggested Volume To Buy:

2lb Bag = 1 Cubic Foot Home Made Soil

10lb Bag = 5 Cubic Feet Of Soil

27lb Bag = Half Yard or 13.5 Cubic Feet of Soil

54lb = 2 x 27lb Bags will Make 1 Cubic Yard of Soil = 27 Cubic Feet

Easiest Volume of soil to make based on 1 x 3.8 CF Bale of Peatmoss = 18 Cubic Feet

Purchase the 27lb and the 10lb bag and mix into the 1 Bale of Peat. 3.8 Cubic foot bale of peat once fluffed = 6 cubic feet. Add to that 6 cubic Feet of Compost and 6 Cubic Feet of Aeration. Total = 18 Cubic Feet of Soil!

Research:

- Kelp Meal
- Crustacean Meal
- Fish Meal
- Neem Cake
- Rolled Oats
- Karanja Cake
- Dried Molasses Powder
- <u>Basalt</u>
- Ferti-Soluble Humic Acid
- Gypsum
- Oyster Shell Flour

Notes From Growers:

Anyone?

Glacial Rock Dust (GAIA Green)

Ingredients:

• 100% Organic Glacial Rock Dust

Guaranteed Analysis:

- Magnesium (Mg)... 0.9%
- Iron (Fe) (actual)... 3.0%
- Manganese (Mn) (actual)... 0.05%

Build A Soil Description:

Glacial Rock Dust benefits soil because it is full of minerals and a very important part of any soil mix.

General:

An excerpt from www.Remineralize.org

Soil Remineralization (SR) creates fertile soils by returning minerals to the soil in much the same way that the Earth does: during an Ice Age, glaciers crush rock onto the Earth's soil mantle, and winds blow the dust in the form of loess all over the globe. Volcanoes erupt, spewing forth minerals from deep within the Earth, and rushing rivers form mineral-rich alluvial deposits.

Within silicate rocks is a broad spectrum of up to one hundred minerals and trace elements necessary for the well-being of all life and the creation of fertile soils. Glacial moraine or mixtures of single rock types can be applied to soils to create a sustainable and superior alternative to the use of ultimately harmful chemical fertilizers, pesticides, and herbicides.

Soil Remineralization has been shown in scientific studies to achieve fourfold increases in agricultural and forestry (wood volume) yields and to produce both immediate and long-term benefits from a single application.

Hundreds of thousands of tons of appropriate rock dust for soil and forest regeneration are stockpiled by the gravel and stone industry.

Usage:

Gardens and landscapes:

Broadcast and lightly incorporate up to 1.2 kg per m2 (0.25 lbs per ft2) annually.

Turf:

Broadcast up to 1.2 kg per m2 (0.25 lb per ft2) annually. After application, water turf thoroughly.

Pre-mixing soil for hanging baskets, potted plants and planter boxes:

Blend up to 15 ml per 4 L (1 tbsp per gallon) of soil or growing medium.

Top-dressing hanging baskets, potted plants and planter boxes: Add 30 ml per 4 L (2 tbsp per gallon) of soil or growing medium. Gently dig into the soil surface up to once a month. Lightly work into soil surface where possible.

Store in a cool, dry location, out of direct sunlight. Protect from frost and other climatic extremes. Seal packaging between uses.

Research:

• https://www.gaiagreen.com/product-page/glacial-rock-dust (Product Website)

Notes From Growers:

Anyone?

Gnarly Barley (Clackamas Coots Artisan Seed Blend)

Ingredients:

- 50% Organic Non-GMO Malted Barley 2 Row
- 30% Organic Non-GMO Sprouted Heirloom Corn
- 20% Organic Non-GMO Sprouted Lentil Seed

Build A Soil Description:

There is a chance that some seeds can still germinate. To maximize enzyme potential the seeds are sprouted and then dried and some seeds will still remain viable even after sprouting and milling. DO NOT use this product unless you are prepared to be on the lookout for possible lentils, barley or corn plant growing and potentially creating pollen that could damage your crop.

Usage:

Potting Soil:

1-2 Cups per cubic foot of soil when mixing.1-2 tbsp per plant topdressed weekly.

Farm Use:

10 lbs per 150 sq. feet of soil 250 lbs per acre

Also usable to boost compost bin activity

Usable as sprouted seed tea, unable to find recipe.

Research:

Notes From Growers:

Anyone?

<u>Grandevo - Bioinsecticide</u>

Ingredients:

- Chromobacterium subtsugae strain PRAA4-1T and spent fermentation media... 30.0%
- Other Ingredients... 70.0%

Build A Soil Description:

Start strong to protect your plants from nutrient-robbing mites, thrips, and aphids that impact yield and quality of your plants. Can be used on organic, biological products. Start early, before an infestation occurs by applying 2 to 4 tablespoons per gallon every 7-10 days. Multiple modes of action: repellency, ingestion, and reproduction disruption. Easy on pollinators and beneficial insects. Alternate with Venerate® CG.

General:

Grandevo CG for whitefly, russet mites, mealybug, thrips, aphids

Usage:

Foliar:

0.62-1.85 TBSP/gallon of water.

Apply at 7-day intervals. Alternate with Venerate CG.

Research:

- https://marronebio.com/cg/cannabis/ (Product Info)
- https://marronebio.com/download/grandevo-cg-label/ (Product Label)
- https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.322.1257 &rep=rep1&type=pdf (Chromobacterium subtsugae sp. nov., a beta proteobacterium toxic to Colorado potato beetle and other insect pests)
- https://www.birc.org/JulAug2011.pdf (New biopesticides for IPM and organic production)

Notes From Growers:

Anyone?

Gro Kashi (Probiotic Amendment)

Ingredients:

Dry Ingredient List:

- Red Wheat 5 gallons
- Azomite 1 cup
- Sea+Real Salt 1 TBSP

Liquid Fermentation Ingredient List (plus 1/5 teaspoon EM Super Cera)

- Water 2.5 Gallons (spring water or other non-chlorinated, cloromine free water)
- Black Strap Molasses 2.5 Oz
- Organic Beet Root Juice 2.5 Oz
- Youngevity btt 2.0 organic 2.5 Oz (dry, but mix with your water)
- EM-1 Microbial Inoculant 2.5 Oz

Build A Soil Description:

If you want to add Effective Microorganisms to your soil you could purchase cheap bokashi bran from overseas or you could get an Artisan Crafted United States Made Product with Lot's of extras that put this product on the top shelf and a tremendous value.

We chose to carry GroKashi because we really like the owners of the company and feel that they truly make the best product on the market.

General:

Grandevo CG for whitefly, russet mites, mealybug, thrips, and aphids

Usage:

As a soil conditioner:

Use at 1-2% total soil volume.

Top dress:

1/3 cup per square foot every 14 days.

As a drench:

Use 1/3 cup per gallon of clean water or nutrient solution, cover loosely, and let sit for 24-48 hours. Stir in 1 teaspoon black strap molasses per gallon of "Gro-Kashi Tea". Strain well, and then use.

Research:

- http://gro-kashi.com/ (Product Website)
- https://www.planetnatural.com/composting-101/indoor-composting/bokashi-composting/ (Bokashi Rundown)
- https://www.researchgate.net/profile/Margit-Olle-2/publication/343
 914609 Review Bokashi technology as a promising technology
 for crop production in Europe/links/60befbc0299bf10dffa6500f/
 Review-Bokashi-technology-as-a-promising-technology-for-crop-production-in-Europe.pdf (Review: Bokashi technology as a promising technology for crop production in Europe)

Notes From Growers:

Grow-Cal (Amino Acid Chelated Liquid Calcium)

Ingredients:

• Non-synthetic calcium chloride chelated with amino acids

Build A Soil Description:

Grow-Cal is derived from non-synthetic calcium chloride and is amino acid chelated with no EDTA chelators used at all, meaning this is safe for microbes. We believe multiple sources of calcium create the best results when considering immediate and long-term needs. Grow-Cal can be used not only as a foliar but also as a drench and we've seen great results doing both.

Due to the chelation, when used as a drench, Grow-Cal may also help with the availability of other forms of calcium. Calcium carbonate is one of the most abundant sources of calcium but it does take time to become bioavailable. Grow-Cal may increase the rate at which calcium carbonate and other forms, become plant available.

General:

At its core, ideal plant development is dependent upon maintaining the right balance of several key minerals. One such mineral is calcium. Just as humans require calcium to build strong bones, plants require calcium to build strong roots and stems (or "plant bones", if you will).

However, it can be difficult to maintain adequate calcium levels for your crops while also maintaining an environment that supports and encourages beneficial microbial life. Most commercial calcium additives are derived from synthetic sources and/or chelated with EDTA, neither of which is conducive to the growth of beneficial microorganisms or organic growing practices. This is where Grow-Cal is different. Grow-Cal is made from non-synthetic calcium chloride and chelated with amino acids, making it friendly to microbes while still delivering the calcium your plants need to thrive.

Usage:

Shake well before each use. Apply Grow-Cal in the early morning or evening while there is still dew on the plant. Avoid applying Grow-Cal in direct sunlight when temperatures exceed 86°F (30°C). Apply with high nitrogen amino acid products like Pure Protein Dry for even better results.

Fruit, Vegetables & Flower Gardens:

Apply 12-16 oz of Grow-Cal per 1,000 sq. ft. of planting area before planting. *Hose end sprayers/injectors work best for this.

Soil Drench, Transplant, or Watering Solution:

Dilute 2 oz of Grow-Cal per 1 gallon of water. Use 4 oz (1/2 cup) of the diluted solution per plant every 2-4 weeks.

Foliar Spray:

Dilute 2 oz of Grow-Cal per 1 gallon of water and mist evenly onto plant foliage every 3 to 4 weeks. *Water as usual

Research:

• https://growingorganic.com/shopping/product/grow-cal-amino-acid-chelated-liquid-calcium/ (Product Website)

Notes From Growers:

Anyone?

Growers Secret Nitrogen 16-0-0

Ingredients:

- 16-0-0 (N-P-K)
- Derived from soy protein hydrolysate
- Total Nitrogen (N) 16.0%
- 15.9% Water Soluble Nitrogen
- 0.1% Insoluble Nitrogen

Build A Soil Description:

Provides a rich source of nitrogen for nitrogen loving plants. Use to help plants grow quickly, and to improve plant quality and appearance. Suitable for use in commercial agriculture and horticulture.

General:

Grandevo CG for whitefly, russet mites, mealybug, thrips, aphids

Usage:

Use at 1 teaspoon per gallon for foliar or soil applications.

Research:

- https://1255037.app.netsuite.com/core/media/media.nl?id=204916 &c=1255037&h=gsxgWbim3o-hHluNYCoUVsHlJGxyJ9ZJdhxygn7Ck PGsTnpU& xt=.pdf&fcts=20220104114935 (Fact Sheet)
- https://1255037.app.netsuite.com/core/media/media.nl?id=204918 &c=1255037&h=VsVAGcswxmOpeOn2C994-5NfJh84mHY8ENi6J3ixbNA8ilij&xt=.pdf (Product Label)

Notes From Growers:

Anyone?

Grower's Secret Professional

Ingredients:

- Total Nitrogen (N) 0.35%
- 0.01% Ammoniacal Nitrogen
- 0.34% Other Water Soluble Nitrogen
- Available Phosphate (P2O5) 0.05%
- Soluble Potash (K2O) 1.0%

Build A Soil Description:

Grower's Secret Professional (GSP) is a highly concentrated organic (OMRI, CDFA, OIM approved) plant growth enhancer processed from a liquid culture of an edible mushroom grown in a mixture of pineapple juice, papaya puree, and molasses.

Use in combination with plant fertilizers and supplements to increase uptake efficiency and optimize crop performance.

General:

OMRI and CDFA OIM approved for organic food, fiber production Fermented from Mushrooms and Fruit Juices Suitable for use in organic and conventional farming

Usage:

 $\frac{https://cdn2.hubspot.net/hub/65442/file-237882643-pdf/images/learningcenter/gsp_app_rates_7-24-13.pdf$

Research:

- https://1255037.app.netsuite.com/core/media/media.nl?id=142159&c=1255037&h=YQ88t18jqD_7NByHOWJTqPxqaeoK2TLu8FfSr4JIm_RKBUsIq&_xt=.pdf (Fact Sheet)
- https://1255037.app.netsuite.com/core/media/media.nl?id=347859 &c=1255037&h=V9YQyFa rQRZHXsz6FWbmGaXq-R91U6RVH8mJ QE37hinct-1& xt=.pdf (Product Label)

Notes From Growers:

Anyone?

Grower's Secret Soluble Corn Steep Powder 7-6-4

Ingredients:

- Guaranteed Analysis 7-6-4
- Total Nitrogen (N) 7.0%
 - 6.81% Water Soluble Nitrogen
 - o 0.19% Insoluble Nitrogen
- Available Phosphate (P2O₅) 6.0%
- Available Potassium (K2O) 4.0%

Build A Soil Description:

Grower's Secret Soluble Corn Steep Powder, provides a well rounded NPK to support abundant root formation and soil microbial activity and prevent

or corrects nitrogen, phosphorus, or potassium deficiencies. It's suitable for organic and conventional crop production and can be applied by air or ground through drench, drip, or flood irrigation on the soil. Derived from Corn Steep Liquor.

Usage:

Mix well in the desired amount of water.

Grower's Secret Soluble Corn Steep powder is believed to be compatible with most fertilizers and plant nutrient products. When mixing with other products it is recommended that a physical compatibility test be conducted before use. A test using small quantities in proportion to field application rates is recommended.

Apply 2-20 pounds per acre when plants are actively growing or as needed based on your nutrient management program determined from soil and plant tissue analysis or sap analysis for your specific crop. This product is a commercial fertilizer and should be used as part of a comprehensive nutrient management program. If mixing with other products always perform a small jar physical compatibility test and a phytotoxicity test on a small part of the field before large-scale applications.

Research:

- https://1255037.app.netsuite.com/core/media/media.nl?id=206104 &c=1255037&h=I3C-bevaLt38wZ1IJMxQSi6jzhBbhcUfhWfjV7Jig3C uWiYi& xt=.pdf (Fact Sheet)
- https://1255037.app.netsuite.com/core/media/media.nl?id=204920 &c=1255037&h=qKRTsUQQ21taaPuR8XOr83THCog2dLEto6cPyKa 350yfEgWw& xt=.pdf (Product Label)

Notes From Growers:

Anyone?

H

Heady Start Seedling Recipe (Soil BAS)

Ingredients:

- PROMIX Plug and Germination recipe with Beneficial Bacteria
- BuildASoil #1 Worm Castings
- Montana Grow Premium Volcanic Rock Dust
- Organic Mustard Seed Meal
- Fish Bone Meal
- <u>Big 6 Micronutrients</u>

Build A Soil Description:

We mixed all our favorite extras into the perfect texture of PRO-MIX to make a superior Plug and Seedling grade soil. Excellent for starting seeds in small cells or any situation where you want the absolute best for your young plants.

By adding Worm castings and Volcanic Rock dust we transform this basic PRO-MIX into living soil. We added each ingredient for a very specific reason. The volcanic rock dust is not only phenomenal for plants it helps aid in creating the perfect gentle texture for your starts. Next, we added in Fish Bone Meal, Mustard, and Big 6 which form a perfect starting boost of NPK, CA, and Micronutrients for peak plant health right at the start.

The biggest difference you can make in the garden is to have the absolute healthiest starts. Blending the ideal texture with the ideal amendments is the best way to solidify the future of your farm.

Usage:

Soil to start seeds

Research:

• N/A

Notes From Growers:

Hemp Extract (Liquid BAS)

Ingredients:

- Probiotically Grown Flower and Roots with an emphasis on Quality
- Clean Mountain Water
- EM-1
- Home Made LABS (LactoBacillus Serum)
- Super Cera Powder
- Molasses

Build A Soil Description:

This hemp extract is made with love on a small farm in Paonia Colorado using natural probiotic farming practices.

General:

Since starting BuildASoil we've been preaching DIY techniques. This particular fermented plant extract is made from hemp and cherries and all the information we have about fermenting your own extracts suggests that you should start with the part of the plant that you wish to grow. For instance, if you wish to get faster vegetative growth you would ferment fast-growing green leaves to feed your plants. However, if you wished to grow bigger flowers, you should ferment flowers to feed your plants. It is with this idea, we fermented hemp plants and flowers to be used as an all-natural bloom booster for your garden.

Usage:

Watering Plants:

1-3 ounces per gallon of clean water.

Foliar Spray:

1 ounce per gallon

Research:

• https://fermentedplantextracts.com/product/fermented-plant-extracts-hemp/ (Fermented Plant Extract Site)

Notes From Growers:

Anyone made a tea with build a flower?

I

<u>Insect Frass Fermented Extract (Growing Organic)</u>

Ingredients:

- Water
- Organic Molasses
- Organic Insect Frass
- Lactic Acid Bacteria

Build A Soil Description:

When you get your first bottle and open it up you'll see the lacto and you'll get a whiff or an earthy and unmistakably loud frass smell. Stink in = Stink out! You're plants and soil will love the frass extract.

Fermented with lactic acid bacteria (LAB) and molasses to break down the plant fibers making the nutrients and beneficial properties they contain more accessible for your garden plants.

General:

Insect frass offers a wide variety of benefits. When fermented, these benefits are readily available for your garden to enjoy. Some of the benefits include:

A balanced profile of nitrogen, phosphorous, and potassium (3-2-3). One of the only sources of chitin. Chitin acts to strengthen plant cell walls and build their immune systems to protect against various pathogens. Contains the microbes from the guts of the insects.

Usage:

Use 1 oz - 4 oz of ferment per gallon of water. It can be used as a drench or foliar application.

Research:

• https://growingorganic.com/shopping/product/insect-frass-ferment-ed-extract/ (Product Website)

Notes From Growers:

Anyone?

<u>Insect Frass (Premium)</u>

Ingredients:

- Insect Frass Black Soldier Fly Larvae
- 3-2-4 (N-P-K)

Build A Soil Description:

Derived from an incredible company in Canada all from the digestate of black soldier fly larvae... In all natural ecosystems (where there are no man-made chemical pesticides), insects feed on and digest vegetation, and give it right back to plants in the form of nature's perfect plant food. Plants benefit insects - Insects benefit plants!

100% Organic plant food, and so much more...

Estimated NPK Value of 3-2-4

General:

Insect Frass naturally contains the nutrition plants require, beneficial micro-organisms, and is the only immediately plant-available source of chitin. Chitin fortifies a plant from the inside out, causing an "auto-immune" response that signals a plant to produce natural toxins which fend off its natural enemies like pests and fungal pathogens. The EPA says that chitin and chitosan defend against botrytis (grey mold), powdery mildew, early and late blight, fungal pathogens in the root zone (root rot), and root-feeding nematodes. Insect Frass does NOT cause a plant to kill beneficial insects or beneficial nematodes.

Insect Frass is NOT a pesticide. Insect Frass is NOT a fungicide. Insect Frass will NOT put insects into your garden. Give your plants all the benefits of Insect Frass, without the bugs!

Usage:

For soil building or top dressing:

Apply at a rate of 1/4 - 1/2 cup per cubic foot of soil.

Research:

• https://core.ac.uk/download/pdf/39280189.pdf (Positive and negative impacts of insect frass quality on soil nitrogen availability and plant growth)

Notes From Growers:

Anyone?

Iron Sulfate - Ferrous Sulfate

Ingredients:

- Ferrous Sulfate
 - o Sulfur... 16%
 - o Iron... 30%

Build A Soil Description:

Iron Sulfate for use against a soil test showing low iron.

Usage:

3 lbs per 5 Gallons Water covers 600 sq. ft

Research:

• https://growingorganic.com/shopping/product/insect-frass-ferment-ed-extract/ (Product Website)

Notes From Growers:

J

K

Karanja Cake (Ahimsa)

Ingredients:

• Residue obtained from Karanja seed kernels which have been crushed to extract the oil.

Build A Soil Description:

Karanja Oil Cake is the residue obtained from Karanja seed kernels that have been crushed to extract the oil. Rich in N-P-K, it is an excellent organic fertilizer. Karanja cake has been known to enrich the soil and protect the plant. Earthworm populations have been known to increase where neem cake has been applied.

General:

Slow Release Nitrogen, Aerates, Nourishes, Promotes Plant Growth & Resistance, Improves Soil Quality. Excellent for Vegan Organic Gardening.

The Karanja tree- Pongamia Glabra - is widely distributed in tropical Asia. The tree is hardy and drought resistant. The 'Pongam' tree is commonly found in India and grows to a height of about 1 m.

The oil of the Karanja or Pongam is used in pharmacy and in agriculture. Like, neem oil, it is excellent for skin and hair and is used in the manufacture of soaps, creams, lotions, and other skin and hair care products.

A mixture containing equal amounts of neem and Karanja oil is very effective on animals for skin problems.

Usage:

Use full strength or mixed with other organic (kelp, seaweed, manure, etc.)

Apply before (the area can be prepared up to a week or 10 days before planting) or during planting or for established plants around the root zone. Use mixed into the soil 6-8 inches or as basal dressing.

Coverage:

180 to 360 lbs./acre 1lb. for plots 100 to 160 sq.ft.

How To Mix into your Container Soil:

1/2 Cup per cubic foot will be plenty (a Cubic foot is about 7.5 gallons of soil)

1 cup weighs 6.5 ounces.

Exercise caution when mixing soil. Be sure to leave the soil mix to rest and compost for at least 1 week. The Longer the better.

Use VERY little for any seed-starting soil.

Research:

- http://www.hort.purdue.edu/newcrop/duke energy/Pongamia pin nata.html (General Info)
- https://growingorganic.com/soil-guide/neemkaranja/ (More info)

Notes From Growers:

Anyone?

Karanja Cake (Terviva)

Ingredients:

• Residue obtained from Karanja seed kernels which have been crushed to extract the oil.

Build A Soil Description:

General:

The Karanja tree- Pongamia Glabra - is widely distributed in tropical Asia. The tree is hardy and drought resistant. The 'Pongam' tree is commonly found in India and grows to a height of about 1 m.

The oil of the Karanja or Pongam is used in pharmacy and in agriculture. Like, neem oil, it is excellent for skin and hair and is used in the manufacture of soaps, creams, lotions, and other skin and hair care products.

A mixture containing equal amounts of neem and Karanja oil is very effective on animals for skin problems.

Usage:

Use full strength or mixed with other organic (kelp, seaweed, manure, etc.)

Apply before (the area can be prepared up to a week or 10 days before planting) or during planting or for established plants around the root zone. Use mixed into the soil 6-8 inches or as basal dressing.

Coverage:

180 to 360 lbs./acre 1lb. for plots 100 to 160 sq.ft.

How To Mix into your Container Soil:

1/2 Cup per cubic foot will be plenty (a Cubic foot is about 7.5 gallons of soil)

1 cup weighs 6.5 ounces.

Exercise caution when mixing soil. Be sure to leave the soil mix to rest and compost for at least 1 week. The Longer the better.
Use VERY little for any seed-starting soil.

Research:

- http://www.hort.purdue.edu/newcrop/duke energy/Pongamia pin nata.html (General Info)
- https://growingorganic.com/soil-guide/neemkaranja/ (More info)
- http://www.terviva.com/ (Website listed on BAS)

Notes From Growers:

<u>Karanja Oil (Terviva)</u>

Ingredients:

• Cold Pressed Karanja Oil

Build A Soil Description:

The Karanja tree- Pongamia Glabra - is widely distributed in tropical Asia. The tree is hardy and drought resistant. The 'Pongam' tree is commonly found in India and grows to a height of about 1 m.

The oil of the Karanja or Pongam is used in pharmacy and in agriculture. Like, neem oil, it is excellent for skin and hair and is used in the manufacture of soaps, creams, lotions, and other skin and hair care products.

A mixture containing equal amounts of neem and Karanja oil is very effective on animals for skin problems.

Usage:

Use at 1 Tablespoon Per Gallon along With Agsil16h or ThermX-70 Yucca Extract to Emulsify.

That means 1 gallon of Karanja oil will make 256 gallons of Potent Foliar Spray.

Research:

- http://www.hort.purdue.edu/newcrop/duke energy/Pongamia pin nata.html (General Info)
- https://growingorganic.com/soil-guide/neemkaranja/ (More info)
- https://cdn.shopify.com/s/files/1/0248/9641/files/OMRI2.JPG?764 2886578901945941 (OMRI Listing)
- http://www.terviva.com/ (Product Site)
- https://www.academia.edu/download/82103684/PT 1147-520.pdf (Possibilities of botanical insecticide exploitation in plant protection)

Notes From Growers:

Karanja Oil (Wild Harvest From India)

Ingredients:

• Wild-crafted, cold pressed from carefully stored seeds of the Karanja tree

Build A Soil Description:

Ahimsa Organics Karanja Oil - OMRI Listed.

The Karanja Tree and The Neem Tree are very similar the odor is slightly milder with Karanja and the oil is a little bit easier to pour at room temperature.

This is a premium Karanja oil!!! Much more effective than your typical Neem Oil at the local Garden Store. Imported From India and Carefully Stored for maximum potency.

Ahimsa Organics Karanja Oil is independently verified to be free of any pesticides or harmful levels of any metals.

Usage:

Use at 1 Tablespoon Per Gallon along With Agsil16h or ThermX-70 Yucca Extract to Emulsify.

That means 1 gallon of Karanja oil will make 256 gallons of Potent Foliar Spray.

Research:

- http://www.hort.purdue.edu/newcrop/duke energy/Pongamia pin nata.html (General Info)
- https://growingorganic.com/soil-guide/neemkaranja/ (More info)
- https://www.academia.edu/download/82103684/PT_1147-520.pdf (Possibilities of botanical insecticide exploitation in plant protection)

Notes From Growers:

Kashi Blend

Ingredients:

- Organic molasses
- Organic rice bran
- Organic wheat bran
- Organic soybean meal
- Organic insect frass
- EM-1
- Trace minerals.

Build A Soil Description:

Our Kashi Blend is derived from organic molasses, organic rice bran, organic wheat bran, organic soybean meal, organic insect frass, EM-1, and trace minerals.

The bag on the inside is bio-degradable and can be composted.

The bag on the outside is a reusable cotton bag!

General:

COMPOST ACCELERATOR: Growing Organic's Kashi Blend helps you compost your food scraps, including meat and dairy, faster than standard composting methods. By the end, you can amend your soil with nutrient-rich bokashi compost.

MICROBIAL SOIL BUILDER: Bokashi is full of beneficial bacteria. These bacteria aid in breaking down nutrients in the soil for bigger plants and larger harvests. Simply top dress your garden or indoor plants with this specialty soil additive to start gaining benefits.

ODOR ELIMINATOR: The microorganisms within bokashi not only help break down food quickly for your compost but can also help eliminate odors such as from your cat's litter box or chicken coop.

HOW IT WORKS: Bokashi incorporates the principles of inoculated fermentation. The inputs used to make bokashi have loads of enzymes and antioxidants that the beneficial bacteria thrive off of. Thus, leaving a product packed full of beneficial microorganisms ready to break down

nutrients. Whether you use it in the soil, compost food waste, or reduce pet waste odors.

Usage:

HOW TO USE AS A COMPOST ACCELERATOR:

To use simply sprinkle a generous amount on top of each new layer you place in your composting bin. Once full, take the bokashi compost and bury it outside for 2 to 3 weeks. After the 2 to 3 weeks, simply dig up and use it as you would any other compost.

Post Fermentation:

Organic powdered malted barley and charged biochar that's been inoculated with Rootwise Mycrobe Complete

As a top dress:

For each square foot of growing space, add a third of a cup of pure bokashi every two weeks

As a soil additive when building soil:

Use 1/2 lb of bokashi for every 9 cubic feet of soil you'll be building or re-amending

Research:

- https://growingorganic.com/shopping/product/kashi-blend-bokashi/ (Product Website)
- https://www.planetnatural.com/composting-101/indoor-composting/bokashi-composting/ (Bokashi Rundown)
- https://www.researchgate.net/profile/Margit-Olle-2/publication/343
 914609 Review Bokashi technology as a promising technology
 for crop production in Europe/links/60befbc0299bf10dffa650of/
 Review-Bokashi-technology-as-a-promising-technology-for-crop-production-in-Europe.pdf (Review: Bokashi technology as a promising technology for crop production in Europe)

Notes From Growers:

Kelp Meal (Organic)

Ingredients:

• Kelp Meal

Build A Soil Description:

Why Kelp? (Don't buy those Expensive bottles of sea water, kelp has it all without excess salt)

General:

Ascophyllum nodosum

Contains over 60 trace elements utilized by your plants

Plants develop more extensive root systems

Greater resistance to nematodes, disease and pests

Improves seed germination

Stimulates soil bacteria

Increases plants stem strength

Helps plants deal with stresses of drought, high temperatures, and frost

Increase the nutritional value of fruits and vegetable

Increases shelf life

Encourages better aerification of soil

Improves moisture retention

Helps normalize soil PH

Improves soil structure

Kelp contains Cytokinins, Indoles, Hormones, Auxins and Gibberellins, and Alginic Acid.

Cytokinins - are cell division factors, which rapidly divide cells.

Indoles - are naturally occurring plant growth promoters for root development and bud initiation.

Auxins - promote rooting and cell enlargement.

Gibberellins - are plant growth substances (phytohormones) involved in the promotion of stem elongation, mobilization of food reserves in seeds, and other processes.

Usage:

Here is a great way to use Kelp Meal fertilizer that was taught to me by ClackamasCoots

Take 1/4 cup of kelp meal and cover that with about 1/2 cup of water and let it completely rehydrate. Once that is done then pour off any excess water and use that for a kelp meal tea.

Take the hydrated kelp meal fertilizer and puree it as much as possible to make a kelp meal paste. You'll want to do this in small batches and store them in the refrigerator in the coldest place which is usually in a corner.

When you need to apply a kelp meal tea then add about 2 tsp. to 1 gallon of water, and shake until it's completely dispersed this is a safe concentration for spraying the leaves and you would probably want to double that amount to apply to the soil.

-Coot

Research:

• https://www.researchgate.net/profile/Ali-Sabir-7/publication/26339 1791 Vine growth yield berry quality attributes and leaf nutrie nt content of grapevines as influenced by seaweed extract Asc ophyllum nodosum and nanosize fertilizer pulverizations/links/6 12e03ba0360302a006cbfco/Vine-growth-yield-berry-quality-attributes-and-leaf-nutrient-content-of-grapevines-as-influenced-by-seaweed-extract-Ascophyllum-nodosum-and-nanosize-fertilizer-pulverizations.pdf (Vine growth, yield, berry quality attributes and leaf nutrient content of grapevines as influenced by seaweed extract (Ascophyllum nodosum) and nanosize fertilizer pulverizations)

Notes From Growers:

Anyone?

Kelpak (Liquid Seaweed Extract)

Ingredients:

• Kelp Meal

Build A Soil Description:

Kelpak liquid seaweed concentrate is also approved in the USA by the WSDA Organic Material Registration Program for use as an input in organic farming. In its review, the WSDA Organic Material Registration

Program uses the standards set by the USDA based on recommendations by the NOSB (National Organic Standards Board).

General:

Ascophyllum nodosum

Contains over 60 trace elements utilized by your plants

Plants develop more extensive root systems

Greater resistance to nematodes, disease and pests

Improves seed germination

Stimulates soil bacteria

Increases plants stem strength

Helps plants deal with stresses of drought, high temperatures, and frost

Increase the nutritional value of fruits and vegetable

Increases shelf life

Encourages better aerification of soil

Improves moisture retention

Helps normalize soil PH

Improves soil structure

Kelp contains Cytokinins, Indoles, Hormones, Auxins and Gibberellins, and Alginic Acid.

Cytokinins - are cell division factors, which rapidly divide cells.

Indoles - are naturally occurring plant growth promoters for root development and bud initiation.

Auxins - promote rooting and cell enlargement.

Gibberellins - are plant growth substanes (phytohormones) involved in the promotion of stem elongation, mobilization of food reserves in seeds, and other processes.

Usage:

Foliar Spray:

Kelpak Liquid Seaweed Concentrate is compatible with most foliar application methods such as the various turbo fan types. Sprays vary from 2-4 pts/Ac. The ratio of Kelpak to water needs to be increased to maintain a 1:300 dilution when volumes above 1000 pts/Ac are used.

Drip Irrigation:

Kelpak Liquid Seaweed Concentrate is applied using drip irrigation methods. Apply as a pulse at the end of the irrigation cycle and do not dilute more than 1:1000.

Root Soak:

Bare roots from trees or plants can be soaked in a Kelpak Liquid Seaweed Concentrate solution of 1% before plant out.

Soil Drench:

Kelpak Liquid Seaweed Concentrate can be applied as a soil drench around the root base of trees and plants or seedbeds in a 0.5-1% solution.

Seedling Tray Dip:

Kelpak Liquid Seaweed Concentrate can be used as a seedling tray dip. Immerse the seedling tray in a 1% solution or apply as a light hand-watering.

Research:

- https://kelpak.com/ (Product Website)
- https://www.researchgate.net/profile/Ali-Sabir-7/publication/26339 1791 Vine growth yield berry quality attributes and leaf nutrie nt content of grapevines as influenced by seaweed extract Asc ophyllum nodosum and nanosize fertilizer pulverizations/links/6 12e03ba0360302a006cbfco/Vine-growth-yield-berry-quality-attributes-and-leaf-nutrient-content-of-grapevines-as-influenced-by-seaweed-extract-Ascophyllum-nodosum-and-nanosize-fertilizer-pulverizations.pdf (Vine growth, yield, berry quality attributes and leaf nutrient content of grapevines as influenced by seaweed extract (Ascophyllum nodosum) and nanosize fertilizer pulverizations)

Notes From Growers:

Anyone?

KNF Pro Line

Ingredients:

- FAA Fish Amino Acids
- FFJ Fermented Ferrule Juice

- LABS Lactic Acid Bacteria Serum
- LV Living Vinegar
- OHN Oriental Herbal Nutrient
- WCA Water Soluble Calcium
- WCAP Water Soluble Calcium Phosphate
- WSK Water Soluble Potassium

FAA - Fish Amino Acids

This preparation is rich in sugars and plant compounds to provide diverse food sources for soil microbiology. FAA is also used in many Modern Korean Natural Farming solutions.

FFJ - Fermented Ferrule Juice

This preparation is rich in sugars and plant compounds to provide food sources for soil microbiology. FFJ is also used in many Modern Korean Natural Farming solutions.

LABS - Lactic Acid Bacteria Serum

This prep known as LABS provides the soil with essential microbiology that is specialized to break down organic matter in the soil to be available to plants and other microbiology.

LV - Living Vinegar

Vinegar is the foundation of Modern Korean Natural Farming Solutions, when added with the other preparations it provides a well-rounded diverse food source for soil microbes.

OHN - Oriental Herbal Nutrient

This preparation is the basis for many Modern Korean Natural Farming solutions, it also provides diverse food sources for soil microbiology.

WCA - Water Soluble Calcium

This preparation known as WCA supports plants at all stages of growth and is a vital part of soil health.

WCAP - Water Soluble Calcium Phosphate

This preparation known as WCAP provides microbial food sources that support plant structure and stability well as bloom and fruiting.

WSK - Water Soluble Potassium

This preparation known as WSK provides support for plant structure & stability, especially during bloom and fruiting. WSK assists in the movement of water and nutrients in the plant and provides a rich diverse food source for soil microbes.

General:

Korean natural farming, or KNF, is a style of gardening and farming created by Master Cho. There are several inputs that it utilizes, such as indigenous microorganisms, fermented products, and lactic acid bacteria serum.

By providing optimal plant nutrition, KNF reduces the need for pesticides and chemical fixes. As healthy plants are able to resist pests, disease, mold, etc. by improving the soil, KNF-grown plants thrive even when environmental conditions are poor.

Usage:

FAA - Fish Amino Acids

Dilution: 4-8mL per gallon of water

FFJ - Fermented Ferrule Juice

Dilution: 4-8 mL per gallon of water

LABS - Lactic Acid Bacteria Serum

Dilution: 4-8 mL per gallon of water

LV - Living Vinegar

Dilution: 2-10 mL per gallon of water

OHN - Oriental Herbal Nutrient

Dilution: 4-8 mL per gallon of water

WCA - Water Soluble Calcium

Dilution: 4-8 ml per gallon of water

WCAP - Water Soluble Calcium Phosphate

Dilution: 4-8 ml per gallon of water

WSK - Water Soluble Potassium

Dilution: 4-8 ml per gallon of water

Research:

•

Notes From Growers:

Anyone?

Kombucha Scoby Culture

Ingredients:

- Symbiotic 'culture' of bacteria and yeast" (SCOBY)
 - Actual contributing microbial populations in SCOBY cultures vary.

Build A Soil Description:

Kombucha is a variety of fermented, lightly effervescent sweetened black or green tea drinks that are commonly intended as functional beverages for their supposed health benefits. Kombucha is produced by fermenting tea using a "symbiotic 'culture' of bacteria and yeast" (SCOBY). Actual contributing microbial populations in SCOBY cultures vary.

SCOBY (Symbiotic Culture of Bacteria and yeast) is a syntrophic mixed culture, generally associated with kombucha production. It has been used in Eastern Europe, Russia, and Japan for several centuries for its wide range of health benefits. 60-70% of our immune system is located in the gut as a vast network of lymph tissue referred to as GALT (gut-associated lymphatic tissue). Now you can brew these amazing elixirs with ease right in your own kitchen!

Usage:

Make It Like So:

- 1. Fill your wide-mouth gallon jug with water and then pour that into your pot. (This is an easy way to measure the volume you need.)
- 2. Bring water to a boil and remove from heat. Add 1 cup of sugar(preferably organic) and tea. The tea can be green, black, white, or oolong. Avoid tea with oils and flavored teas. Stir and allow to steep with the lid off. You want your water to cool to room temperature.

- 3. Once the water has cooled to where you can stick your finger in and it's neither too hot nor too cold, transfer it to your clean gallon jar. Stir in the ½ cup of kombucha*. Use your wooden spoon to add your SCOBY.
- 4. Cover with cheesecloth and secure with a rubber band. Keep in a slightly warm spot, like beside your oven, or on top of your fridge. By the window in the winter would be a bad idea as the cooler the area, the longer it will take to ferment.
- 5. Be patient. Let sit for 2-4 weeks. Start tasting it after two weeks and then every few days until it's to your desired taste. Once achieved, refrigerate 6. *If you don't have a ½ cup of kombucha, it's okay. This simply acts as a starter. It just might mean your kombucha will take a little longer to ferment.

Research:

• https://www.scielo.br/j/cta/a/Q55RP8Sy4rwQZZqfGYrHZPD/?lang=en&format=pdf (Combinations of traditional kombucha tea with medicinal plant extracts for enhancement of beneficial substances and activation of apoptosis signaling pathways in colorectal cancer cells)

Notes From Growers:

Anyone?

L

Lacto Soap Cillis

Ingredients:

- Oryza Sativa Oil (Rice Bran Oil)
- Organic Cocos Nucifera Milk (Coconut Milk)
- Organic Cocos Nucifera Oil (Coconut Oil)
- Sodium Hydroxide (Lye)
- Organic Ricinus Communis (Castor Oil)
- Kashi Blend (Organic Molasses, Organic Rice Bran, Organic Camelina Meal, Organic Wheat Bran, Organic Insect Frass, EM-1, and Trace Minerals)

- Effective Microorganisms
- Frankincense
- Tea Tree
- Lavender Essential Oils

NATURAL & VEGAN: We utilize only the purest plant-based materials available to formulate our probiotic + vegan castile soap because we understand what you put in your body is just as important as what you put on your skin.

PROBIOTICS FOR YOUR SKIN: Your skin has a microbiome that needs to be cared for too! Our probiotic castile soap combines skin-loving oils with microorganisms like lactobacillus and bifidobacterium ready to help your skin feel brighter and nourished.

NO ARTIFICIAL FRAGRANCES: Mother Earth has given us so many wonderful natural scents to choose from, we would never want to replace these with artificial and toxic fragrances. This is why each of our all-natural vegan probiotic soaps utilizes only the finest essential oils. Always bringing you naturally fresh and revitalizing scents to enjoy.

PALM OIL FREE: Each year, humans destroy nearly ten percent of the world's forests for palm oil production. This is why you will never find palm oil in any of our probiotic soaps.

Usage:

Personal Use IPM Emulsification possibly

Research:

- https://www.gardenguides.com/137151-lactobacillus-plant-growth.html (Lactobacillus for Plant Growth)
- https://growingorganic.com/ipm-guide/how-to-make-lactobacillus/ (How to make)
- https://growingorganic.com/shopping/product-category/personal-care/soaps-shampoo-bars/ (Product website)

Notes From Growers:

Anyone?

Lava Rock (Small w/ Dust)

Ingredients:

• Beautiful Small Black Lava Rock

Build A Soil Description:

This small black lava rock comes with black lava rock powder in it and will add to the minerals in your soil

Last longer than perlite, works like perlite, and provides minerals.

Lava Rock will not shift and float to the top of your container like perlite.

Usage:

Use in place of perlite

Research:

• N/A

Notes From Growers:

Anyone?

<u>Light Recipe (Soil by BAS)</u>

Ingredients:

- BuildASoil Worm Castings
- Organic Canadian Sphagnum Peat Moss
- Organic New Mexico Pumice
- Organic Par-Boiled Rice Hulls
- Grand Mesa Colorado Volcanic Basalt
- Organic Diamond K Gypsum
- Montana Grow Silica Rock Dust
- Organic High P Bran
- Organic Mustard Seed Meal
- Organic 2 Row Milled Malted Barley

- Organic Terviva Karanja Cake
- BuildASoil Pre Charged Bio-char with Rootwise Mycrobe Complete.

It was designed based on Logan Labs soil testing and saturated paste testing. We wanted to design a premium plant and mineral-based potting soil. Along with that, it had to be a compost-based soil without any of the low-quality ingredients normally in organic potting soils. Besides being clean, the goal was that it would test High in available calcium and low in available sodium. After dozens of lab tests and real-world tests, this potting soil mix became a clear-cut favorite for BuildASoil customers. It was designed to work with all plants by keeping excess to a minimum and balancing as the goal. Because the recipe is so balanced it has the ability to be run as a No-Till Soil with added topdressing or to be run as a highly steerable recipe for organic feeding. Compared to our other recipes this is our most popular all-around potting mix. Excellent for starting seeds or full-term growth

General:

Low-Cost High-Quality Inputs with Complete Disclosure on Ingredients Mixed indoors in small batches for absolute confidence All Vegan Inputs

YOUR SOIL IS ALIVE!! LIVING SOIL DISCLAIMER: NOT sterilized any of our compost or Potting soils during the manufacturing process and as a result, it will contain a plethora of life. This could be beneficial mites, fungus, and microbes as well as, from time to time, unwanted fungus gnats. While we do our best to keep anything unwanted to a minimum we cannot guarantee it. We always recommend purchasing beneficial insects to combat this possibility and/or learning best practices to avoid population explosion.

Commercial Customers: NOTICE OF HEAVY METALS - All organic potting soils will contain trace amounts of heavy metals. BuildASoil Light has lots of Compost and amendments and commercial facilities should be sure to have Heavy Metal Compliance Program for your state to make sure you are in the clear. Each state varies. Home Growers need not concern as the commercial restrictions are significantly lower than even normal outdoor garden soil.

NOTICE: New recipe improvements are lower heavy metals than ever before

Usage:

"Gentle enough for seeds, strong enough for flower. Best performance with topdressing, feed, or tea.

Research:

- https://cdn.shopify.com/s/files/1/0248/9641/files/Light-Soil-Tests-BuildASoil.pdf?986 (Soil Test Results)
- https://cdn.shopify.com/s/files/1/0248/9641/files/BuildASoilLightHeavyMetalReportJan22.pdf?v=1643297786 (Heavy Metal Results)
- https://cdn.shopify.com/s/files/1/0248/9641/files/Light-Soil-Tests-BuildASoil-SaturatedPaste.pdf?986 (Sat. Paste Test)

Notes From Growers:

Anyone?

Limestone (AG)

Ingredients:

• Limestone

Build A Soil Description:

AG Limestone is an agent added to soil to help raise the pH without adding trace amounts of magnesium like Dolomite Lime.

This Limestone contains 4% magnesium compared to Dolomite which is approximately 14% magnesium. Ag Lime contains aragonite which is a crystal form of Calcium Carbonate, Calcium carbonate is water soluble while magnesium is not.

Usage:

Spread in a thin, even layer over soil

Research:

• https://www.carmeuse.com/na-en/products-services/product/ag-lim-e-agriculture (General Info)

Notes From Growers:

Anyone?

L.O.S. (Malibu Compost Soil by BAS)

Ingredients:

- Malibu Biodynamic Compost
- Canadian Sphagnum Peat Moss
- New Mexico Pumice
- Par-Boiled Rice Hulls
- Grand Mesa Volcanic Basalt
- Diamond K Ag Gypsum
- Oyster Shell Flour
- Thorvin Icelandic Kelp Meal
- Terviva Karanja Cake
- Crustacean Meal
- BAS Pre Charged Bio-char w/ Rootwise Mycrobe complete

Build A Soil Description:

Living Organic Soil with Malibu Compost Multiple Commercial Grows Report passing heavy metals with this recipe

NOTICE OF POTENTIAL TO HEAT:

Due to the nature of mixing multiple composts and ingredients together it is possible that this potting soil will heat up once combined into larger volumes and watered in. Please be sure to double-check soil temperatures before planting. (Especially likely when combining over 10 Cubic Foot Soil bags into a new container)

YOUR SOIL IS ALIVE!! LIVING SOIL DISCLAIMER:

We DO NOT sterilize any of our compost or Potting soils during the manufacturing process and as a result, it will contain a plethora of life. This could be beneficial mites, fungus, and microbes as well as, from time to time, unwanted fungus gnats. While we do our best to keep anything

unwanted to a minimum we cannot guarantee it. We always recommend purchasing beneficial insects to combat this possibility and/or learning best practices to avoid population explosion.

Commercial Use:

NOTICE OF HEAVY METALS - All organic potting soils will contain trace amounts of heavy metals. LOS Malibu has lots of Compost and amendments and commercial facilities should be sure to have Heavy Metal Compliance Program for your state to make sure you are in the clear. Each state varies. Home Growers need not concern as the commercial restrictions are significantly lower than even normal outdoor garden soil.

General:

Nutrients Included:

Kelp Meal @ 1/2 Cup per cubic foot Crustacean Meal @ 1/2 cup per cubic foot Premium Basalt @ 2 Cups Per Cubic Foot Gypsum Dust @ 1 Cup Per Cubic Foot Oyster Flour @ 1 Cup Per Cubic Foot Terviva Karanja Cake @ 1/2 Cup Per Cubic Foot

Usage:

Strength: 8/10 Balance: 7/10 Compost: 10/10

Research:

• https://vimeo.com/215690839?embedded=true&source=video_title &owner=23098120 (BAS Video)

Notes From Growers:

Anyone?

L.O.S V3 Mineral Mix

Ingredients:

• BuildASoil Basalt - Our Favorite Rock Dust for trace minerals. Highly paramagnetic.

- Gypsum Flour Pellets Calcium and Sulfur
- CalPhos
- BuildASoil Premium Montmorillonite

For Production of Mineral Mixes.

General:

Basalt
Gypsum Flour Pellets
CalPhos
Montmorillonite

Usage:

Use at 2 Cups Per Cubic foot of soil or about 4 Tablespoons per gallon of soil

Research:

- Basalt
- Gypsum Flour Pellets
- CalPhos
- Montmorillonite

Notes From Growers:

Anyone?

L.O.S V3 Nutrient Mix Kit

Ingredients:

- Crustacean Meal Crab and Shrimp
- Kelp Meal Thorvin Brand Ascophyllum Nodosum
- Karanja Cake Terviva
- Malted Barley Grain
- Fish Bone Flour
- Alfalfa Meal Organic

For Production of Mineral Mixes.

General:

Crustacean Meal - Crab and Shrimp
Kelp Meal - Thorvin Brand Ascophyllum Nodosum
Karanja Cake - Terviva
Malted Barley Grain
Fish Bone Flour
Alfalfa Meal Organic

Usage:

Use at 1.5 Cups Per cubic foot of soil or about 3 Tablespoon per gallon of soil

What You'll Need To Get To Finish The Recipe:

Canadian Sphagnum Peat Moss

High-Quality Compost or Worm Castings: Search for local compost or castings on craigslist or order some on BAS.

3. Aeration Amendment: Something to aerate the soil like perlite does in normal potting mix. We like to use Pumice and Rice hulls but you can use whatever is available to you including perlite, rice hulls, lava rock, pumice, etc.

Mix and then let sit for 1-2 weeks before planting.

Research:

- Crustacean Meal Crab and Shrimp
- Kelp Meal Thorvin Brand Ascophyllum Nodosum
- Karanja Cake Terviva
- Malted Barley Grain
- Fish Bone Flour
- Alfalfa Meal Organic

Notes From Growers:

Anyone?

${ m M}$

Malibu Compost (Bu's Blend Biodynamic Blend)

Ingredients:

- Organically Fed, Humanely Treated Outdoor raised Dairy cow manure
- Straw
- Vineyard wood chips

Biodynamic concentrations of:

- Yarrow
- Chamomile
- Valerian
- Stinging nettle
- Dandelion
- Oak bark.

Build A Soil Description:

General:

"Our compost repairs your soil's ecosystem, saves water, and serves as a source of humus for planting and managing soil health while also emanating energetic life forces to vitalize your vegetables, plants, flowers, lawns, gardens, farms, and our earth."

Usage:

Plants, Trees, and Shrubs:

Apply 1/2" of compost throughout at the start of every spring and fall. (first-time users apply 1") Top-dress at 1/16" every 4-6 weeks throughout the rest of the year.

Houseplants:

Compost every spring and fall: 4" pots - apply 1/16" throughout; 1-gallon sizes and up - apply 1/4" throughout.

Raised Bed Food Gardens:

Apply 1" of compost throughout at the start of every growing season.

Fruit Trees:

Compost every year after harvesting from each specific tree. Apply 1" of compost throughout starting 6" away from the tree trunk out towards the drip line.

FOR USE IN MIX

Add up to 25% of Bu's Blend Biodynamic Compost to any potting soil or planting mix other than Baby Bu's Potting Soil. (Baby Bu's Potting Soil already contains 25% of Bu's Blend).

FOR IN-GROUND PLANTING

If your soil is clay, compact, or sandy, make a hole at least twice the size of your container. Then mix 50% Bu's Blend Biodynamic Compost with 50% of your native soil, then plant your plant. You can plant all new plants, trees, and shrubs in your garden this way.

Research:

• https://www.malibucompost.com/product-page/bu-s-blend-biodynamic-compost (Product Website)

Notes From Growers:

Anyone?

Malibu Compost (Bu's Brew Biodynamic Compost Tea Bags)

Ingredients:

- Varying
- https://www.malibucompost.com/compost-tea (Different Tea Blends)

Will restore your plant's vitality, this tea will make your plants go insane. They will LOVE it, and even better, love YOU for it. Contains all the preparations, plus some extra love.

Usage:

Add 1 tea bag to 2 to 5 gallons of water.

Steep the compost tea bag for 8 to 12 hours, then use it immediately. After steeping, give the tea bag a squeeze, then remove it from the compost tea.

Recycle the tea bag into your compost pile or garden.

Aerate compost tea by stirring for a moment before applying.

Use a watering can to drench the soil base with compost tea, or use a sprayer to apply it to your acid-loving plants. When drenching, apply tea at the same rate as normal watering for the specific plant.

Apply once a month for optimum results.

Research:

• https://www.malibucompost.com/compost-tea (Product Website)

Notes From Growers:

Anyone?

Malted Barley Grain (For SST Cert. Organic)

Ingredients:

• Malted Barley Grain

Build A Soil Description:

Whole Malted Barley -

Grind at home for the freshest sprouted seed tea

Milled Malted Barley -

This has already been crushed so it's ready for your sprouted seed tea right out of the bag.

Think of this like buying coffee, if you have a way to grind it's best to do it fresh, otherwise our milled malted barley is the way to go.

Usage:

You can effectively use this to make your own Enzyme Rich Sprouted Seed Tea without all of the hassles of sprouting the seeds yourself. Not only that, but these seeds have been scientifically sprouted to produce the most enzymes possible and the practices used are far superior to the home sprouter.

Topdress:

1/8 - 1/4 Cup per plant.

Build Soil using this seed meal:

1/2 - 1 Cup Per Cubic Foot.

Bubble a tea for 4 hours and water immediately using 1/8th cup per gallon of water.

Research:

- •
- https://cdn.shopify.com/s/files/1/0248/9641/files/MaltedBarleyTest.pdf?10869896644367170942 (Microbe Test)
- https://www.queenofthesungrown.com/post/enzyme-tea (Blog post about enzymes)

Notes From Growers:

Anyone?

Manganese Sulfate

Ingredients:

- MANGANESE SULFATE MONOHYDRATED (MnSO4.H2O) 98.2 98.9% -
- SULFUR (S) 19.0 19.5 % -
- MOISTURE (H2O) 0.15 0.30% 0.5% max.
- INSOLUBLE MATTER IN WATER 0.05 0.10% -
- pH 4 6

Usage:

Careful with these rates they are taken from another product for palms see "More Info" link

Broadcast Application:

20-60 lbs. per acre pre-plant or at planting.

Banded or Side Dress Application:

10-30 lbs. per acre.

Foliar Application:

Apply to actively growing plants just before full leaf expansion for best results.

Thorough coverage and wetting are needed for optimum foliar spray results. Adjust application gallonage for equipment and/or crop coverage. DO NOT apply to foliage when plants are suffering from moisture or heat stress.

DO NOT apply to deciduous tree crops during bloom. Solutions of Greenway Biotech, Inc Manganese Sulfate - Powder may be prepared for dilute sprays according to nutritional needs and the following ratios of product-to-diluent.

Nutritional Maintenance	1 lb. / 100 gals.
Mild Deficiency	. 1-2 lbs. / 100 gals.
Severe Deficiency	3 lbs. / 100 gals

Research:

- https://cdn.shopify.com/s/files/1/0248/9641/files/MSDSManganese Sulfate.pdf?3073743399427207497 (MSDS)
- https://cdn.shopify.com/s/files/1/0248/9641/files/SPECManganese_Sulfate.pdf?17100534524762887302 (Tech Sheet)
- https://www.greenwaybiotech.com/products/manganese-sulfate (More Info)

• https://www.greenwaybiotech.com/blogs/gardening-articles/29422785-the-relationship-between-manganese-potassium (What is the Role of Manganese and Potassium?)

Notes From Growers:

Anyone?

Microelements 1-0-0

Ingredients:

Guaranteed Analysis: Total Nitrogen (N): 1% 0.0225% Ammoniacal Nitrogen 0,010% Nitrate Nitrogen 0.9675% Water Insoluble Nitrogen Magnesium (Mg): 0.45% Sulfur (S): 1.80% Boron (B): 0.020% Copper (Cu): 0.20% Iron (Fe): 0.20% Manganese: (Mn): 0.75% Zinc (Znk 1.50% Derived from: Soybean meal, magnesium sulfate, sodium borate, copper sulfate, Iron oxide, manganese sulfate and zinc oxide. Micronutrients complexed with amino acids.

Build A Soil Description:

Ferticell® Microelements are a blend of micronutrients, freshwater algae extract, nitrogen, and plant-extracted amino acids (derived from soybean).

Ferticell® Microelements is a natural liquid micronutrient blend of high-quality chelated micronutrients. Ferticell® Microelements help to

boost the synthesis of enzymes, the process of photosynthesis, and the absorption of water.

By using Ferticell® Microelements throughout the crop cycle many nutrient deficiencies in the plant and soil can be avoided before they become a problem.

Unlike many micronutrient blends, Ferticell® Microelements are immediately available to the plant. Using natural unicellular algae cells helps to promote biological activity and ensure the maximum uptake and assimilation of nutrients by acting as a delivery system directly to the plant cells.

General:

Increase in chlorophyll content and enzymatic functions Aids the photosynthetic pathways resulting in better growth Increases the number of fruit and decreases fruit drop Increased rate of water absorption Helps to withstand stress conditions such as drought Better crop quality and higher yields

Usage:

5-10 mL per Gallon of Water

Research:

• https://cdn.shopify.com/s/files/1/0248/9641/files/Microlements 1-0-0 SDS.pdf?2593343923126282535 (SDS Sheet)

Notes From Growers:

Anyone?

Micronized Sulfur (Microthiol Disperss)

Ingredients:

• Micronized Sulfur

Microthiol Disperss Micronized Sulfur is an 80% fungicide and acaracide with sulfur particles of 9 microns or less, providing increased superior coverage on crops. Micron size ranges from 0.82 - 9.0 with an average size of 2.5. SULFUR DF can be applied by air or ground and is labeled on over 50 crops and multiple mite species.

Micronized Sulfur is a dust-free, dry flowable sulfur in a granular form. It dissolves without the formation of foam and offers outstanding suspensibility. It includes fine granules containing sulfur particles of 9 microns or less and mixes easily in water without any special agitation. The sulfur particles are held in suspension as a dilute or concentrate spray for use by ground or aerial equipment.

The increased number of sulfur particles offers superior coverage, while its spreader-sticker qualities increase adherence to leaves and fruit and reduce wash-off by heavy rain. It has both Federal and California registrations as a fungicide and miticide on 51 crops.

General:

Large number of particles for increased coverage Applied by air or ground OMRI Certified Can be applied as a concentrate or dilute

Major Pests: Powdery Mildew, Brown Rot, Blossom Blight, Peach Canker, Shot Hole, Prune Rust, Rust, Scab, Two-Spotted Mite, Strawberry Mite, Pacific Mite

Major Crops: Alfalfa, almonds, plums, cherries, peaches, blueberries, broccoli, cabbage, cauliflower, carrots, citrus, garlic, grapes, melons, onions, peppers, pistachios, pomegranates, strawberries, tomatoes, walnuts

Usage:

Foliar:

Mix at a rate of 2 Tablespoons per gallon of water.

Do not spray horticultural or essential plant oils for 14 days PRIOR TO OR FOLLOWING application.

Spray with lights off.

Research:

- https://journals.sagepub.com/doi/pdf/10.1177/1934578X120070032
 3 (Sulfur and Sulfur Compounds in Plant Defence)
- http://phj.rums.ac.ir/article-82292 abaa113a1202131c5c1b7b74869 cc711.pdf (Sulfur Application as Pesticide in Pistachio Orchard: Health and Safety)

Notes From Growers:

Anyone?

Molasses (Food Grade Oregon Tilth)

Ingredients:

• Organic Molasses

Build A Soil Description:

Treat yourself and Brew better Compost Tea.

Feeds Bacteria and Fungus in Microbial Extraction.

Organic Molasses – Code #677

Dark, very flavorful natural molasses. The flavor is heat resistant. This product is food grade and is processed under strict sanitary condition.

General:

Solids 79 - 80%
Invert 14 - 22%
Sucrose 30 - 36%
Total Sugars 45 - 52%
Ash 11.5% Max
pH 5.0 - 6.0
Color (Absorbance, 430 nm) 1.4 - 1.8
Total Plate Count < 5000/gm
Yeast/Mold < 100/gm
Salmonella Negative
Coliform Negative

Usage:

Sugar source for microbes, used in compost tea at varying rates

Research:

• http://hawaiiag.org/harc/VEG3.pdf (MOLASSES SOIL AMENDMENT FOR CROP IMPROVEMENT AND NEMATODE MANAGEMENT)

Notes From Growers:

Anyone?

Montmorillonite (Calcium Bentonite BAS)

Ingredients:

• Calcium Bentonite

Build A Soil Description:

Montmorillonite is used as a soil additive to increase the CEC of the soil and dramatically enhance the soil profile through natural micronutrients.

This Montmorillonite is so premium it can be used internally to treat a variety of ailments.

Find more info here: http://www.montmorillonite.org/

General:

"The results of research and findings on the natural clay mineral MONTMORILLONITE, are as follows:

- 1. The mineral absorbs toxic substances from the intestinal tract, and at the same time possesses a healing and soothing quality.
- 2. The absorptive power of this natural clay-mineral compound is very great. It absorbs gaseous substances and aids in regularity.
- 3. The natural clay mineral helps supply mineral trace elements that may be lacking in the diet.

- 4. The natural trace elements act as catalysts that aid in metabolism, and cell building.
- 5. These minerals form a gel-like substance that acts as a protective coating in the intestinal tract.
- 6. These minerals contain both ferrous and ferric iron. Ferrous irons for the hemoglobin (red coloring-matter of the blood) formation, and ferric irons for the muscular cells.
- 7. Minerals function in maintaining osmotic pressure and influence the contractility of muscles.
- 8. Minerals enter into the synthesis of every living cell and they influence the vital processes of oxidation, secretion, growth, and reproduction.
- 9. Mineral elements are essential to the structure of certain complex chemical compounds, which influence the course of metabolism."

Similar to many other clays, montmorillonite swells with the addition of water. Montmorillonite expands considerably more than other clays due to water penetrating the interlayer molecular spaces and concomitant adsorption. The amount of expansion is due largely to the type of exchangeable cation contained in the sample.

"An interesting side-light on the background of this rare, natural Montmorillonite mineral, is written and told by many persons who have delved into its history. It is told that deposits were rare and greatly esteemed by the Indians. Medicine Men wandered for hundreds of miles in search of the cherished minerals."

"The most outstanding form of Montmorillonite, in my many years of experimenting with trace elements, is the brown trace mineral from Panaca, Nevada, processed by New World Minerals Company.

The Panaca Montmorillonite deposit is superior to all other known deposits. All of the other deposits of which I am aware were formed by volcanic action which means that most of the elements present are in the inorganic state, and are not really assimilated by animals and humans. Inorganic minerals such as dolomite, ferrous sulfate, zinc gluconate, and calcium gluconate when ingested, must be made soluble in the stomach. At the same time protein is hydrolyzed into amino acids. When both are done, and conditions are right, the mineral is chelated by the amino acids, meaning suspended between two or more amino acids. Once chelated the mineral can be metabolized."

"The Panaca deposit was formed by heavy sedimentation of mineral elements in plant and animal marine life such as seaweed, shrimp, and algae. In this form, the minerals were naturally chelated in the plant and animal organism, or in other words, "in organic form."

Usage:

1/4 cup per cubic foot of potting soil or top dress each plant with 1/4 cup

4 lbs yields roughly 8.5 cups

Research:

• http://www.montmorillonite.org/

Notes From Growers:

Anyone?

<u>MushMatte (Mycoremediation For Your Garden)</u>

Ingredients:

Build A Soil Description:

These Burlap Mats are inoculated with fungi.

This mat is about 3'x3'

Unroll the mat and you'll see it's covered in mycelium and ready to use.

Cover your soil and then cover the mat in wood chips and compost and water.

The MushMatte

"I created the MushMatte for the DIY gardener as well as the industrial application where the natural treatment of biological and chemical contaminants in soil and water is desired. The mycelium in the MushMatte will seek out and deliver clean water and nutrients to your garden vegetable and flowers just the way it's done in nature". May 2020, David Gann, Chief Science Officer, South River Aquaponics and Alpenglow Mushrooms

In heavily contaminated soil or water, such as an oil spill or a high concentration of toxic waste any resulting mushrooms should not be used for human or animal consumption. In a normal gardening application, however...enjoy your delicious mushrooms!

General:

Mycoremediation

Fungi have been proven to be a very cheap, effective, and environmentally sound way of helping to remove a wide array of toxins from damaged environments or wastewater. Mycoremediation is a form of bioremediation in which fungi-based technology is used to decontaminate the environment.

The toxins include heavy metals, persistent organic pollutants, textile dyes, leather tanning industry chemicals and wastewater, petroleum fuels, polycyclic aromatic hydrocarbon, pharmaceuticals, and personal care products, pesticides and herbicides in the land, sweet water, and marine environments.

Types of treatment

Biodegradation

It is the ultimate degradation and recycling of complex molecules to their mineral constituents. It is the process that leads to the complete mineralization of the starting compound to simpler ones like CO2, H2O, NO3, and other inorganic compounds by living organisms, especially microbes.

Biosorption

The process of removal of metals/pollutants from the environment by fungi is biosorption. Biosorption is considered as an alternative to the remediation of industrial effluents as well as the recovery of metals present in the effluent.

Biosorption is a process based on the sorption of metallic ions/pollutants/xenobiotics from effluent by live or dried biomass which often exhibits a marked tolerance towards metals and other adverse conditions.

Bioconversion

The conversion of industrial or agro-industrial sludges into some other useful forms is called Bioconversion.

Contaminants/Pollutants

Mycoremediation is being popularly used around the world by scientists and waste treatment experts for the removal of contaminants and pollutants like:

Metals

A variety of fungi, such as Pleurotus, Aspergillus, Trichoderma has proven to be effective in the removal of lead, cadmium, nickel, chromium, mercury, arsenic, copper, boron, iron and zinc in the marine environment, wastewater and on land.

Organic pollutants

Fungi are very efficient in the decomposition of matter. Wood-decay fungi, especially white rot, secrete extracellular enzymes and acids that break down lignin and cellulose, the two main building blocks of plant fiber.

Pesticides

Pesticide contamination can be long-term and their degradation can be expensive and difficult. The most used fungi for helping in the degradation of such substances are white rot ones which, thanks to their extracellular ligninolytic enzymes like laccase and manganese peroxidase, are able to degrade a high quantity of such components.

Usage:

Place the mat in your garden with the mycelial layer facing down. You can cover your garden area completely or just in spots where you would like to see plant health and growth improve.

Gently cover the mat with a light layer of hardwood wood chips, like alder, oak, cottonwood, or Aspen.

Cover the mat with approximately 4-6 inches of soil from your garden, continue your normal garden watering regime and let the mycelium begin to grow and recondition the soil of your garden naturally.

The MushMatte is best used in spring and fall when your garden is still active and the daytime temperatures are above 60 degrees F.

Research:

• https://www.lexiconoffood.com/image/mycoremediation ("Mycoremediation")

Notes From Growers:

Anyone?

Mustard Seed Meal

Ingredients:

Mustard Seed Meal

Build A Soil Description:

Our fertilizer is rich in natural plant nutrients and amino acids. Its formulation is 100% plant-derived allowing for a unique organic composition that selects for beneficial microbes in the soil. This, coupled with its highly bioavailable nutrient profile drastically improves crop nutrient uptake and therefore overall crop performance. There are no additives or preservatives used during manufacturing. This creates a unique, high-quality product that goes unmatched in the marketplace.

General:

Fertilizer (NPK 4.50-1.50-1.15) Sourced from non-GMO seed Great source of organic material in your garden Easy to use and safe to handle Suitable for conventional and organic farms and gardens Enhanced soil biology High in Sinigrin Glucosinolate

Powder Or Pellets?

PELLETS

Mustard Seed Meal Pellets are best used in applications where a slow release of fertilizer is desired. The pellets are less distributed throughout the soil and therefore break down at a slower rate. This is ideal for situations where long-lasting, slow-release fertilizer is desirable. The application can be done by hand, or by pellet spreader/injector. The pellets are strong and hold together well, minimizing breakage in mechanical spreaders. In most cases, this is the most desirable form for top- or side-dressing, potted horticulture, and backyard gardeners.

MILLED

Milled Mustard Seed Meal Fertilizer is simply a result of grinding and crushing the pellets into a powder-like consistency. When applied to the soil, Milled is better distributed throughout the soil profile. This allows for a more uniform availability and quicker release of nutrients. It is also more rapidly consumed by microorganisms, quickly creating healthy living soil. It is best applied by hand or by a drop spreader (mulch/compost spreader). Careful consideration should be taken while using mechanized spreaders as the material has a high oil content that may cause clumping or clogging of machinery. It is best spread during days with mild temperatures and low humidity to avoid clumping. Milled is recommended for most pre-plant applications on the farm, garden, or container growing. As always, be sure to allow for a minimum three-week plant back with all pre-plant applications.

Applications of Mustard Seed Meal select for specific bacterial and fungal communities in the soil. These specific communities work to improve nutrient availability for the crop, reduce plant stress, increase plant vigor, and improve yields. Scientists nationwide have reported a consistent promotion of soil fungal and bacterial communities containing Trichoderma spp., Streptomyces spp., Pseudomonas spp., Anthrobotrys spp., Plectosphaerella cucumerina, Dactylella oviparasitica, Paecilomyces lilacinus and many more. Each of these beneficial microbes plays a crucial role in the complex interaction occurring between soil and roots creating a

long-lasting symbiotic relationship that aids in the enhanced production and protection of crops.

Usage:

Can be harmful to young seedlings, be careful.

Worms will move away from a mustard meal when top dressed and if they can't move away it will be toxic to them.

This stuff is potent and we are still learning, so proceed with caution if you are going to go hard.

" 3/4 Teaspoon per sqft. Use that multiple based on your container size. Only use to amend empty beds and feed late stage veg."

"If doing for pest control then some dusting along the soil surface works good. I milled up 2 cups worth over a 4x4 bed and that did great.

Just remember that it's highish in N so always go lightly if in flower.

If you have sensitive veggers then it can burn them too. It's some strong stuff!"

Research:

- https://cdn.shopify.com/s/files/1/0248/9641/files/MustardSeedMea https://www.lines.com/s/files/1/0248/9641/files/MustardSeedMea https://www.lines.com/s/files/1/0248/9641/files/MustardSeedMea <a href="https://www.lines.com/s/files/1/0248/9641/files/MustardSeedMea <a href="https://www.lines.com/s/files/1/0248/9641/files/MustardSeedMea <a href="https://www.lines.com/s/files/1/0248/9641/files/MustardSeedMea <a href="https://www.lines.com/s/files/1/0248/9641/files/MustardSeedMea <a href="https://www.lines.com/s/files/1/0248/9641/files/MustardSeedMea https://www.lines.com/s/files/mustardSeedMea <a href="https://www.lines.com/s/files/mustardSeedMea <a href="https://www.lines.com/s/files/mustardSeedMea <a href="https://www.lines.com/s/files/mustardSeedMea <a href="https://www.lines.com/s/files/mustardSeedMea <a href="https://www.lines.com/s/files/mustardSeedMea <a href="https
- https://www.uidaho.edu/cals/archive/2017-stories/matt-morra-mustard (The Many Uses of Mustard Seed)
- https://cdn.shopify.com/s/files/1/0248/9641/files/Biologically Active Compounds in Mustard Seeds.pdf?v=1647544038 (Biologically Active Compounds in Mustard Seeds: A Toxicological Perspective)

Notes From Growers:

Anyone?

Mycorrhizal Granular Inoculum

Ingredients:

- Glomus Intraradices
- Glomus Mosseae

- Glomus Aggregatum
- Glomus Etunicatum

This 4 Spore Mycorrhizae blend will increase the power of your plant's root system.

60,000 propagules/lb. or 132 propagules/gram

General:

This endo mycorrhizal granular inoculum consists of 4 carefully selected species of endomycorrhizae. About 80% of the world's plant species form with these types of mycorrhizae. These beneficial fungi greatly increase the effective rooting area of plants thereby enhancing plant growth, vigor, and tolerance to environmental extremes. Our product is a granular material containing mycorrhizal fungi that colonize roots and extend into the surrounding soil forming an essential link between plant and soil resources. They greatly increase the root's ability to absorb water and nutrients, while improving plant survival, vigor, and health.

With so many different Myco Products on the market, it's hard to determine what to buy. For a long time, I've personally recommended getting a Glomus Intraradices spore by the pound on eBay and I still think it's a good product. But now we can offer a product directly from the manufacturer that contains 4 spores proven to work very well together. You'll notice the first two if you've been reading around about growing indoors with Myco. The second two are also important and will have benefits depending on environmental situations with over-watering or under-watering etc. Research has shown that using a variety of endomycorrhizal spores known to associate with your plant is the best approach. Finally, we can offer a product that follows along with the BuildASoil theme. This product is the main component for many existing product lines, the difference is that we have decided to offer just the straight spores without diluting them or adding unnecessary ingredients just to raise the price.

Usage:

3 lbs per 5 Gallons Water covers 600 sq. ft

Research:

- Glomus Intraradices
- Glomus Mosseae
- Glomus Aggregatum
- Glomus Etunicatum
- http://buildasoil.com/blogs/news/12214117-soil-fungi-are-the-root-o-f-all-yields (Blog Article on Myco)

Notes From Growers:

Anyone?

<u>Mycorrhizal Ultrafine (Granular Inoculum - Endo/Ecto Blend)</u>

Ingredients:

- Glomus Intraradices
- Glomus Mosseae
- Glomus Aggregatum
- Glomus Etunicatum

Build A Soil Description:

Ultrafine Endo is a wettable powder with a particle size less than 300 microns (#50 screen). This concentrated, fine material is ideal for "water in" or "spray" applications. About 90% of the world's plant species form symbiotic relationships with these beneficial endomycorrhizal fungi. They colonize plant roots, expand into the surrounding soil and greatly increase the root's ability to absorb water and nutrients while improving plant yields and health.

Mycorrhizal Granular Endo/Ecto Inoculum consists of 11 carefully selected species of endomycorrhizae and ectomycorrhizae. These beneficial fungi greatly increase the effective rooting area of plants thereby enhancing plant growth, vigor, and tolerance to environmental extremes. MycoApply Endo/Ecto is a granular material containing mycorrhizal fungi that colonize roots and extend into the surrounding soil forming an essential link between plant and soil resources. They greatly increase the root's ability to

absorb water and nutrients, while improving plant survival, vigor, and health.

Usage:

Apply to potted plants/transplants:

1-2tbls/gal pot size.

Inoculum can be banded in rows or side dressed:

Before or during planting at a rate of 1.5 to 2 lb/acre

For restoration:

Inoculum can be hydromulched or banded in rows with seed during planting at a rate of 15 to 22 lb/a (16.81 to 24.66 kg/ha). Use 40 to 60 lb/a (44.83 to 67.25 kg/ha) to broadcast or rototill before planting

Research:

- Glomus Intraradices
- Glomus Mosseae
- Glomus Aggregatum
- Glomus Etunicatum
- http://buildasoil.com/blogs/news/12214117-soil-fungi-are-the-root-o-f-all-yields (Blog Article on Myco)

Notes From Growers:

Anyone?

N

Neem Bark Powder (Ahimsa)

Ingredients:

• Pure, Wild-Crafted Neem Bark Powder

Build A Soil Description:

Neem Bark Powder has historically been used in several skincare and hygiene products, and its properties have been well researched.

This powder is great if you're looking to give your worms a little something special.

Usage:

We recommend top dressing your worm bins with a 1/4 Cup.

Research:

• http://www.jbiopest.com/users/lw8/efiles/vol_5_o_72_76f.pdf (Neem products and their agricultural applications)

Notes From Growers:

Anyone?

Neem Cake (Ahimsa)

Ingredients:

• OMRI Listed Neem Cake

Build A Soil Description:

Ahimsa Neem Cake Pellets are the residue obtained from neem seed kernels that have been crushed to extract the oil. Rich in N-P-K, it is an excellent organic fertilizer. Neem cake has been known to enrich the soil and protect the plant. Earthworm populations have been known to increase where neem cake has been applied.

Slow Release Nitrogen, Aerates, Nourishes, Promotes Plant Growth & Resistance, Improves Soil Quality. Excellent for Vegan Organic Gardening.

Usage:

Use full strength or mixed with other organic (kelp, seaweed, manure, etc.)

Apply before (the area can be prepared up to a week or 10 days before planting) or during planting or for established plants around the root zone. Use mixed into the soil 6-8 inches or as basal dressing.

Coverage:

180 to 360 lbs./acre, 1lb. for plots 100 to 160 sq.ft.

How To Mix into your Container Soil:

1/2 Cup per cubic foot will be plenty (a Cubic foot is about 7.5 gallons of soil)

1 cup weighs 6.5 ounces.

Exercise caution when mixing soil. Be sure to leave the soil mix to rest and compost for at least 1 week. The Longer the better.

Use VERY little for any seed-starting soil.

Research:

- http://www.jbiopest.com/users/lw8/efiles/vol_5_o_72_76f.pdf (Neem products and their agricultural applications)
- http://buildasoil.com/blogs/news/8446753-the-neem-tree-is-a-global-problem-solver (The Neem Tree)
- http://buildasoil.com/blogs/news/9738672-neem-cake-and-neem-oil-information-on-the-neem-tree (More Neem Info)

Notes From Growers:

Anyone?

Neem Cake (West Coast Horticulture)

Ingredients:

• Neem Cake from cold pressed neem seeds

Build A Soil Description:

West Coast Horticulture, a nutrient supply company that specializes in fertilizers and growing media, recently added Neem Cake 6-1-2 to the company's catalog of offerings.

Neem Cake 6-1-2 is derived from organically grown, cold-pressed neem seeds. The neem tree, or Azadirachta indica, has been used for centuries in agriculture as an organic pesticide. The highest concentrations of this trait can be found in the tree's oil and its seeds, making Neem Cake 6-1-2 an effective natural fertilizer and soil amendment.

The product can be top-dressed, made into a tea for liquid feeding, or premixed into the soil to increase mineral content and organic matter.

Usage:

Use full strength or mixed with other organic (kelp, seaweed, manure, etc.)

Apply before (the area can be prepared up to a week or 10 days before planting) or during planting or for established plants around the root zone. Use mixed into the soil 6-8 inches or as basal dressing.

Coverage:

180 to 360 lbs./acre, 1lb. for plots 100 to 160 sq.ft.

How To Mix into your Container Soil:

1/2 Cup per cubic foot will be plenty (a Cubic foot is about 7.5 gallons of soil)

1 cup weighs 6.5 ounces.

Exercise caution when mixing soil. Be sure to leave the soil mix to rest and compost for at least 1 week. The Longer the better.

Use VERY little for any seed-starting soil.

Research:

- http://www.jbiopest.com/users/lw8/efiles/vol_5_o_72_76f.pdf
 (Neem products and their agricultural applications)
- http://buildasoil.com/blogs/news/8446753-the-neem-tree-is-a-global-problem-solver (The Neem Tree)
- http://buildasoil.com/blogs/news/9738672-neem-cake-and-neem-oil-information-on-the-neem-tree (More Neem Info)
- https://westcoasthorticulture.com/product/neem-cake-6-1-2/ (Product Website)

Notes From Growers:

Anyone?

Neem and Karanja Mix (50/50)

Ingredients:

- 50% Neem Cake
- 50% Karanja Cake

Build A Soil Description:

Slow Release Nitrogen, Aerates, Nourishes, Promotes Plant Growth & Resistance, Improves Soil Quality. Excellent for Vegan Organic Gardening.

We Order Pallets of Neem Cake and Karanja Cake and provide value by shipping any quantity and allowing you to mix it with other ingredients. The Karanja Cake is beautiful and has a very mild odor compared to Neem Cake. Almost identical in properties to the Neem cake, this Karanja Cake is one of our best products. Thanks to Terviva and their amazing Certified Organic Karanja Products.

General:

Karanja Cake is the residue obtained from Karanja seed kernels that have been crushed to extract the oil. Rich in N-P-K, it is an excellent organic fertilizer. Karanja cake has been known to enrich the soil and protect the plant. Earthworm populations have been known to increase where neem cake has been applied.

Usage:

Use full strength or mixed with other organic (kelp, seaweed, manure, etc.)

Apply before (the area can be prepared up to a week or 10 days before planting) or during planting or for established plants around the root zone. Use mixed into the soil 6-8 inches or as basal dressing.

Coverage:

180 to 360 lbs./acre, 1lb. for plots 100 to 160 sq.ft.

How To Mix into your Container Soil:

1/2 Cup per cubic foot will be plenty (Cubic foot is about 7.5 gallons of soil) 1 cup weighs approx. 6.5 ounces.

Research:

• http://www.hort.purdue.edu/newcrop/duke_energy/Pongamia_pin_nata.html (Karanja General Info)

- https://growingorganic.com/soil-guide/neemkaranja/ (More Karanja info)
- http://www.jbiopest.com/users/lw8/efiles/vol_5_0_72_76f.pdf (Neem products and their agricultural applications)

Notes From Growers:

Anyone?

Neem Leaf Powder (Ahimsa)

Ingredients:

• Pure, Wild-Harvested, Crushed Neem Leaf

Build A Soil Description:

Dried Crushed Neem Leaf has historically been used in several skincare and hygiene products, and its properties have been well researched.

This powder is great if you're looking to give your worms a little something special.

Usage:

We recommend top dressing your worm bins with a 1/4 Cup.

Research:

• http://www.jbiopest.com/users/lw8/efiles/vol_5_0_72_76f.pdf (Neem products and their agricultural applications)

Notes From Growers:

Anyone?

Neem Oil (Ahimsa Wild-Harvested)

Ingredients:

• Pure, Wild-Harvested, Indian Neem Oil

Build A Soil Description:

Ahimsa Organics Neem Oil is Wild-crafted, cold pressed from carefully stored seeds* of the Neem tree. This oil is perfect for skin care, animal care & herbal use, or as an agricultural spray. It is rich in all the limonoids and compounds that have earned Neem oil its title as A Tree For Solving Global Problems. The oil is guaranteed free of aflatoxin* which is a fungus that can grow on poorly cleaned or stored seeds. It has a strong garlic/nutty aroma - unpleasant to some but loved by those who have experienced its healing and protective powers.

General:

Neem Oil is mainly composed of glycerides of palmitin, stearin, and linolic acids. Neem Oil is similar to Palm Oil. Both oils deposit stearin at low temperatures and especially after they solidify. This process is repeated with each cycle of freezing and thawing. Neem Oil has a high wax content and therefore clouds at 16 C (60.8 F) and tends to solidify at 12 C (53.6 F). At temperatures below 5 C (41 F), Neem Oil is solid and on thawing will deposit stearin. This can be filtered out if needed.

It is also normal to find creamy globules of fatty acid deposits in Neem Oil stored at room temperature. These will melt on thawing.

Ahimsa Organics Neem Oil is independently verified to be free of any pesticides or harmful levels of any metals.

Usage:

Use at 1 Tablespoon Per Gallon along With Agsil16h to Emulsify.

That means 1 gallon of Neem oil will make 256 gallons of Potent Foliar Spray.

Research:

• http://www.jbiopest.com/users/lw8/efiles/vol_5_0_72_76f.pdf (Neem products and their agricultural applications)

Notes From Growers:

Anyone?



Oly Mountain Fish Compost

Ingredients:

• 2-year hardwood and Alaskan wild-caught fish compost.

Build A Soil Description:

Oly Mountain Fish Compost® and Oly Mountain Organic Compost® are registered organic compost materials, high in organic matter and soil-building nutrients, sold through quality retail outlets in our communities.

Oly Mountain Fish Compost is a virtually odorless compost and soil additive that is high in nutrients that takes over two years to become a finished product.

Oly Mountain Organic Compost is an excellent compost that is weed free. It serves as an attractive soil cover in beds and effective weed mulch. The extra composting time and careful screening make them an exceptional quality product for growing healthy plants, fruits, vegetables, and ornamentals

Usage:

Compost

Research:

- https://vimeo.com/98592052?embedded=true&source=video-title&owner=23098120 (Malibu vs Oly BAS Video)
- https://cdn.shopify.com/s/files/1/0248/9641/files/OlyMountainTest Results.pdf?17528081305516205704 (Test results)
- https://olyfish.com/ (Product Website)

Notes From Growers:

Anyone?

OptiVeg (Chitin and Aminos)

Ingredients:

• 2-year hardwood and Alaskan wild caught fish compost.

Build A Soil Description:

OptiVeg[™], formerly InvigaRoot, is the market's first truly tested chitin product. As an all-natural and organic soil amendment, chitin has an array of benefits such as reducing the effects of light and transplant shock, preventing the growth of detrimental soil bacteria, improving plant vigor and resistance, increasing root growth and fungal inoculation all the while increasing yields down the line. Since chitin is present in the cuticle of all fungi, incorporating a chitin-based product in conjunction with your favorite fungal inoculant speeds up the inoculation process allowing you to use less product and reduce costs. Unlike all other chitin-based products, OptiVeg[™] is not derived from marine sources and thus does not include detrimental minerals that affect nutrient uptake, soil pH, and overall plant health. In addition to chitin, OptiVeg[™] is chock full of amino acids which make up roughly 60% of the overall composition.

Titan Biologics worked tirelessly to develop a testing protocol that ensures stable and consistent chitin content. OptiVeg[™] is not salt based and contains no synthetic components therein reducing the risk of feeding too much. At 8.2% chitin, OptiVeg[™] is a must-use product for any growers who wish to speed up the vegetative process while yielding healthier, more robust plants with improved resistance and potential for higher yields.

Usage:

Seedlings:

1/2 tsp of OptiVeg and 1/4 of endomychorrhizal inoculant in topsoil and immediately water in. Repeat with 1/2 tsp of OptiVeg once per week.

Transplants:

Sprinkle 1 tsp of OptiVeg and ½ tsp of endomychorrhizal inoculant into the transplant hole. Mix 1 additional tsp of OptiVeg and ½ tsp endomychorrhizal inoculant into topsoil at the base of the stem and immediately water in. Reapply 1 tsp once a week, mix in, and water.

Established Plants:

Sprinkle ½ tbsp of OptiVeg and 1 tsp of endomychorrhizal inoculant around the base of the plant, above the root zone. Gently mix into soil and immediately water in. Reapply ½ tbsp once a week.

TIPS:

For every 2-gallon container size increase, up the dosage by ½ tbsp Reduce typical feeding regimen

Apply with dry mycorrhizal inoculant directly to soil

Works in all mediums, best in coco and soil

For Rockwool, evenly distribute across the top surface and/or dunk in a mix of 1 tbsp OptiVeg, ½ tsp surfactant, 5 cups water.

For seedlings, let seedlings establish and use little by little to test plant reaction

Apply with a surfactant to increase proliferation Discontinue use on plants over 2 weeks into flowering

Research:

- https://cdn.shopify.com/s/files/1/0248/9641/files/InvigaRoot Chitin Analysis 1 1.pdf?10046080559570351599 (Chitin Analysis)
- https://cdn.shopify.com/s/files/1/0248/9641/files/InvigaRoot Chitin Content Stacked Plot 12-7-16 1 1.pdf?10046080559570 351599 (Chitin Content)
- https://cdn.shopify.com/s/files/1/0248/9641/files/titan-biologics-1
 o 13 16 elementbrkdn 1.xlsx?10046080559570351599 (Elemental Breakdown)
- https://cdn.shopify.com/s/files/1/0248/9641/files/OptiVegSDS.pdf?3169472030026819987 (SDS)
- https://vimeo.com/215877662?embedded=true&source=video title &owner=23098120 (BAS OptiVeg Video)
- https://www.mdpi.com/2218-273X/11/6/819/pdf?version=1622454
 og7 (Sustainable agriculture systems in vegetable production using chitin and chitosan as plant biostimulants)

Notes From Growers:

Anyone?

<u>Organics Alive - Fermented Castor Bean</u>

Ingredients:

Active Ingredient:

- 25% Polyethylene glycol ricinoleate
 - o Extracted from castor bean

Build A Soil Description:

Organics Alive FCB is an Organic & natural liquid derived from fermented Castor Beans. It regulates and manages the energy process in the plant at different growth stages. FCB regulates plant energy by managing excess radiation absorbed by the leaves. This process results in redirecting energy in the plant for higher photosynthesis rate and nutrient absorption to convert them into carbohydrates, sugars, and proteins. In short, it allows your plant to minimize the use of the ATP from the mitochondria that cool down chloroplast and redirects that energy for plant growth and health. Active ingredients in the product also regulate plant-cell osmotic potential to reduce water loss and stimulate plant growth. In this entire process, the plant improves its nutrient utilization resulting in faster growth, mitigating stress, and increasing yields with a better quality of the harvest.

General:

Protects plants from heat and moisture stress. Saves plant energy resulting in increased growth. Controls transpiration rate & avoids wilting. Increases heat and stress tolerance. Increases plant vigor & yield. Safe to handle and easy to spray on all crops.

Usage:

2-4 ml per gallon foliar only. Once a week

1/2 gallon per acre foliar only. Once a week

Can be used in all phases of growth considering environmental conditions that meet foliar requirements.

Research:

• :

Notes From Growers:

Anyone?

Organics Alive - FPF Fermentation Extract

Ingredients:

• Fermented plant and Non-GMO grains

Build A Soil Description:

Organics Alive FPF is fermented plant and Non-GMO grains. It is not mined or derived from mined sources. FPF is a powerful foliar inoculant and root drench with instant results. The elemental properties within its nature increase the plant's ability to readily complex minerals and nutrients making them available to plant roots and easily absorbable through cell walls.

General:

FPF is fermented grains liquid which we isolate and extract using a non-base method for pure and clean material containing no heavy metals.

FPF contains high levels of small molecule composition acids, amino acids, humic acid, minerals, and enzymes. It is of low molecular weight. Because of its low molecular weight, it has the ability to readily bond minerals and elements into its molecular structure causing them to dissolve and become easily absorbed by plants.

FPF is organic and non-toxic.

Dissolves silica and magnifies the many benefits of this element.

Responsible for an increase in stomata opening and transpiration and assists plant respiration as well as improving the respiration of beneficial microorganisms.

Directly influences numerous enzymatic processes and stimulates the plant's immune system.

Beneficial for plant RNA & DNA.

Increase the activity of multiple enzymes.

Aid chlorophyll synthesis.

Enhances terpene profile and increases brix.

Increase crop yields.

Buffer soil pH.

Synthesize new minerals.

Stimulate plant metabolism.

Decompose silica to release essential mineral nutrients.

Detoxify various pollutants (pesticides, herbicides, etc.).

Usage:

Soil drench:

ıml per gallon

Foliar application:

1ml per gallon1 gallon per acre.

Research:

• https://organicsalivegarden.com/products/fpf (Product Website)

Notes From Growers:

Anyone?

Organics Alive - V-K Dry Powder 0-2-10

Ingredients:

• Derived from microbial fermentation by-product

Build A Soil Description:

Organics Alive V-K Dry Soluble Powder is designed for plants in need of potassium in different stages of growth..... It has a macronutrient value of o-2-10 (N-P-K) N (Nitrogen) P (Phosphorus) K (Potassium) which is designed for plants that like a high source of potassium. Organics Alive fertilizer is effective in foliar applications due to the innovative manufacturing process.

General:

Organics Alive Fertilizers are innovative, sustainable, and organically derived. They are available in Dry Soluble Powders and Slow Release Granular. Our carbon-based technology is derived from microbial extracts using innovative fermentation technology. Our process allows us to create organic plant nutrition without the use of animal byproducts and with a more sustainable approach to fertilizer manufacturing. Our Fertilizers exclude salts, chemicals, and non-essential heavy metals.

Usage:

Does not collect biofilms nor do they accumulate salt or mineral composites in fertigation systems.

Root Drench:

1 tsp/5ml per gallon of water.

Larger fruit plants: 2 tsp/10ml per gallon. 5-10 lbs per acre (depending on crop and soil analysis).

Foliar Spray Applications:

1 tsp. per gallon.

Research:

• https://organicsalivegarden.com/collections/fertilizer/products/v-k-bloom-formula-0-2-10 (Product Website)

Notes From Growers:

Anyone?

Organics Alive - V-N Dry Powder 10-2-2

Ingredients:

Derived from microbial fermentation by-product

Build A Soil Description:

Organics Alive V-N Dry Soluble Powder is designed for plants in the propagation through vegetative stages of growth. It has a macronutrient

value of 10-2-2 (N-P-K) N (Nitrogen) P (Phosphorus) K (Potassium) which is designed for plants that like a high source of nitrogen.

Organics Alive fertilizer is effective in foliar applications due to the innovative carbon-based technology.

General:

Organics Alive Fertilizers are innovative, sustainable, and organically derived. They are available in Dry Soluble Powders and Slow Release Granular.

Our carbon-based technology is derived from microbial extracts using innovative fermentation technology. Our process allows us to create organic plant nutrition without the use of animal byproducts and with a more sustainable approach to fertilizer manufacturing. OA Fertilizers exclude salts, chemicals, and nonessential heavy metals.

Regular fertilizers break down into nutrient ions (NO₃-, PO₄-2 or K+) and are absorbed by the plant roots through active transport, meaning the plant needs to expend some energy and/or exchange other nutrients to allow absorption.

OA fertilizers do not undergo this breakdown process because they are built on carbon and are neutral. This neutrality allows them to pass through the epidermis of the plant through topical foliar applications. The carbon acts as a facilitator for passive absorption which allows the plant to take in nutrients and save energy for its growth.

Usage:

Does not collect biofilms nor do they accumulate salt or mineral composites in fertigation systems.

Root Drench:

1 tsp/5ml per gallon of water.

Larger fruit plants:

2 tsp/10ml per gallon.

5-10 lbs per acre (depending on crop and soil analysis).

Foliar Spray Applications:

1 tsp. per gallon.

Research:

• https://organicsalivegarden.com/collections/fertilizer/products/v-pk-fertilizer-bloom-formula-0-10-2 (Product Website)

Notes From Growers:

Anyone?

Organics Alive - V-PK Dry Powder 0-10-8

Ingredients:

• Derived from microbial fermentation by-product

Build A Soil Description:

Organics Alive V- PK Dry Soluble Powder is designed for plants in full production of flower and fruit. It has a macronutrient value of o-10-8 (N-P-K) N (Nitrogen) P (Phosphorus) K (Potassium) which is designed for plants that need phosphorus and potassium to build and maintain fruit and flowers during critical stages of growth.

Organics Alive Fertilizer is effective in foliar applications due to the innovative manufacturing process.

General:

Organics Alive Fertilizers are innovative, sustainable, and organically derived. They are available in Dry Soluble Powders and Slow Release Granular. Our carbon-based technology is derived from microbial extracts using innovative fermentation technology. Our process allows us to create organic plant nutrition without the use of animal byproducts and with a more sustainable approach to fertilizer manufacturing. OA Fertilizers exclude salts, chemicals, and non-essential heavy metals.

Regular fertilizers break down into nutrient ions (NO3-, PO4-2, or K+) and are absorbed by the plant roots through active transport, meaning the plant needs to expend some energy and/or exchange other nutrients to allow absorption.

OA fertilizers do not undergo this breakdown process because they are built on carbon and are neutral. This neutrality allows them to pass through the epidermis of the plant through topical foliar applications. The carbon acts as a facilitator for passive absorption which allows the plant to take in nutrients and save energy for its growth.

Usage:

Does not collect biofilms nor do they accumulate salt or mineral composites in fertigation systems.

Root Drench:

1 tsp/5ml per gallon of water.

Larger fruit plants: 2 tsp/10ml per gallon. 5-10 lbs per acre (depending on crop and soil analysis).

Foliar Spray Applications:

1 tsp. per gallon.

Research:

• https://organicsalivegarden.com/collections/fertilizer/products/v-n-fertilizer-vegetative-formula-10-2-2 (Product Website)

Notes From Growers:

Anyone?

Organics Alive - TR-D Dry Powder 4-5-5

Ingredients:

• Derived from microbial fermentation by-product

Build A Soil Description:

Organics Alive V-TR Dry Soluble Powder is designed for plants transitioning into flower or beginning to set fruit. It has a macronutrients value of 4-5-5 (N-P-K) N (Nitrogen) P (Phosphorus) K (Potassium) which is well balanced and can be used on all perennials, annuals, flowers, fruits, vegetables, and turf.

Organics Alive Fertilizer is effective in foliar applications due to the innovative manufacturing process.

General:

Organics Alive Fertilizers are innovative, sustainable, and organically derived. They are available in Dry Soluble Powders and Slow Release Granular. Our carbon-based technology is derived from microbial extracts using innovative fermentation technology. Our process allows us to create organic plant nutrition without the use of animal byproducts and with a more sustainable approach to fertilizer manufacturing. OA Fertilizers exclude salts, chemicals, and non-essential heavy metals.

Regular fertilizers break down into nutrient ions (NO3-, PO4-2 or K+) and are absorbed by the plant roots through active transport, meaning the plant needs to expend some energy and/or exchange other nutrients to allow absorption.

OA fertilizers do not undergo this breakdown process because they are built on carbon and are neutral. This neutrality allows them to pass through the epidermis of the plant through topical foliar applications. The carbon acts as a facilitator for passive absorption which allows the plant to take in nutrients and save energy for its growth.

Usage:

Does not collect biofilms nor do they accumulate salt or mineral composites in fertigation systems.

Root Drench:

1 tsp/5ml per gallon of water.

Larger fruit plants: 2 tsp/10ml per gallon. 5-10 lbs per acre (depending on crop and soil analysis).

Foliar Spray Applications:

1 tsp. per gallon.

Research:

• https://organicsalivegarden.com/collections/fertilizer/products/v-tr-fertilizer-transition-formula-4-8-8 (Product Website)

Notes From Growers:

Anyone?

Oyster Shell Flour

Ingredients:

• Ground oyster shell

Build A Soil Description:

Oyster Shell Flour is a high-quality soil conditioner that consists of 96% calcium carbonate and many micronutrients, Oyster Shell Flour provides a long-lasting, steady release of nutrients to help regulate pH levels, improve fertilizer uptake, promote healthy cellular structure and enhance soil tilth. Oyster Shell is also helpful in creating more active habitats for soil microbes in compost piles and worm bins.

Usage:

For soil building or top dressing:

Apply at a rate of 1 cup per cubic foot of soil.

Research:

• https://digitalcommons.lsu.edu/cgi/viewcontent.cgi?article=1489&context=agexp (The effects of combinations of lime and fertilizers on yields of cotton, corn, and hairy vetch)

Notes From Growers:

Anyone?

P

Peach Extract (Liquid BAS)

Ingredients:

- Water
- Lactic Acid Bacteria sourced from local goat whey
- Thermex 70
- Sorghum Syrup
- Plant Matter (Peach)
- EM1

<u>Derived From</u>: Orchard Grown Peaches, Clean Mountain Water, molasses, sorghum syrup, Lactic Acid Bacteria sourced from local goat whey, Super Cera Powder, and EM-1. This is then fermented until the peach fruit is digested and extracted into the liquid and the sugars are consumed by the microbes to lock in the PH for stability and ease of use in the garden.

Build A Soil Description:

This peach fruit extract is made with love on a small farm near Paonia Colorado using natural probiotic farming practices.

General:

Since starting BuildASoil we've been preaching DIY techniques. This particular fermented plant extract is made from ripe peach fruit, and all the information we have about fermenting your own extracts suggests that you should start with the part of the plant that you wish to grow. For instance, if you wish to get faster vegetative growth you would ferment fast-growing green leaves to feed your plants. However, if you wished to grow bigger flowers, you should ferment flowers to feed to your plants. It is with this idea, we fermented peach fruit to be used as an all-natural bloom booster for your garden.

<u>Lactobacillus varieties are:</u>

Ubiquitous, meaning they are everywhere!

Facultative or surviving in both aerobic and anaerobic environments.

Microaerophilic, which is biology speaks for preferring environments with less oxygen than typical environmental air - like in soil.

Rod-shaped bacillus means "wand" or "small staff"- the "magic wand" because fermentation has an alchemical nature of transmuting raw materials into more nutritious valuable preparations.

Heterofermentative translates to producing a variety of outputs including nutrients, CO2, yeasts, acids, and carbohydrates, which plants crave. Antipathogenic in biology can mean that effective and beneficial microbes outcompete and overcome "the bad guys," or pathogenic microbes, often present in decomposition.

"Fermentation with lactobacillus offers a natural means to modify nutritional and flavor properties of foods, and strains have crucial effects on it."

https://www.sciencedirect.com/science/article/abs/pii/S2212429222003546

Usage:

Soil Drench:

1 - 4 oz to 1 gal of water

Foliar Spray:

1 - 4 oz to 1 gal of water

Field Application:

10 - 30 gal per acre

Compost Booster:

4 - 8 oz to 1 gal of water

Research:

• Didn't find anything easily

Notes From Growers:

Anyone made a tea with build a flower?

Perlite

Ingredients:

• Perilite

Build A Soil Description:

BuildASoil doesn't use perlite in our recipes, as we prefer to grow stone, pumice, or rice hulls. That being said we do keep it in stock for custom recipes. We source our perlite in Colorado from Persolite - here's some information about them!

If you're seeking perlite products, manufactured and processed by an industry expert with more than 60 years in the business, make sure you're choosing Persolite Products. We're pleased to be your foremost authority on perlite and can answer any questions you might have about the material or its applications.

Healthy, hardy plants require a proper soil mix which includes Perlite. PERLITE is essentially lightweight glass - specifically volcanic glass. When mixed with soils, it increases aeration and drainage which helps root development.

Coarse perlite is extremely effective in horticultural applications to lighten the soil, allow more air around the roots of plants and both help retain water and improve drainage.

When used as a soil additive, coarse perlite serves to enhance the potential for foliage in a number of ways—namely by improving soil permeability, facilitating irrigation, and lowering the density of the soil for proper root growth!

For years, perlite manufacturers have been studying the demands of different horticulture applications to produce bulk perlite products that are conducive to better plant growth. Persolite Products is proud to be on the cutting edge of this research and we're delighted to be able to offer our customers perlite products that are specifically formulated for optimal plant growth.

Our bulk perlite products are formulated to maximize airflow and moisture to plant roots, while also improving drainage. The effects are plain to see—plants bedded in soil with our perlite additive grow bigger, stronger,

more vibrant, and to a healthier degree versus those grown in Rockwool or with denser soil additives!

From the grow house to the greenhouse, community gardens to sports field turf, it's important to trust a perlite manufacturer that understands the needs of your planting application and who can provide a coarse perlite solution that meets and exceeds those needs. Persolite Products is here to help, with decades of innovation and experience backing us.

Usage:

Use to improve aeration and drainage in soil blends

Research:

N/A

Notes From Growers:

Anyone?

Phydura (Organic Weed and Grass Killer)

Ingredients:

Clove oil and other biodegradable ingredients.

Build A Soil Description:

OMRI listed for organic use.

Broad-killing herbicide that is all Natural. Phydura is a broad-spectrum contact herbicide that utilizes clove oil and vinegar as active ingredients. Phydura is a non-selective spray application that is exempt from EPA registration and has no re-entry interval. Weeds controlled include both grasses and broadleaf weeds in the landscape, nursery, greenhouse, and garden settings, In general, treated weeds are eradicated within 24 hours of treatment. Weeds that are in an early stage of development are especially susceptible to Phydura treatment and are often eradicated with just one application. Phydura is 100 percent biodegradable and has a pleasant scent.

Usage:

Spot treat sidewalks, patios, and driveways around greenhouses and buildings.

Prepare and maintain flowerbeds and vegetable gardens.

Keep centers clear in orchards and berry plantings.

Edge around trees, shrubs, and walkways.

Keep fences clear of weeds and grasses.

Mix with water at a 3:1 ratio (3 parts water to 1 part Phydura). Phydura works best in full sun, with temperatures above 75°F. Use a 2:1 ratio on cool or cloudy days.

Research:

• https://www.soiltechcorp.com/images/uploads/product_PDFs/Phydura-AG_TDS_OMRI_04032017.pdf (Product lit.)

Notes From Growers:

Anyone?

PitMoss

Ingredients:

PitMoss

Build A Soil Description:

PittMoss is made from recycled fibers that are specifically engineered to provide optimal management of applied resources, like water. PittMoss has incredible wettability, water retention, and availability. This makes for better use of resources by storing and delivering them to your plants as they need it and reducing runoff.

The cellulosic fibers that makeup PittMoss do not simply help save water. Due to the incredible air space and porosity, PittMoss absorbs and releases nutrients back into the root system to grow your plants big and strong. The fibers also reduce nutrient leaching and run-off into groundwater.

PittMoss allows for excellent air exchange, water availability, and distribution of food for microbes, which creates an excellent microbial

environment. Provided certain conditions, you may even see some of these "friends of the soil" bloom

PittMoss provides an excellent environment for germination and growth. The surface area of the fibers creates a good balance of air and water, with easy pH balancing and no treatments required for pathogens.

Usage:

Use in soil blends as a substitute for peat moss

Research:

- https://pittmoss.com/physical-properities-comparison-of-pittmoss-suphagnum-perlite/ (Comparing the Physical Properties of Varying Blends of Sphagnum Peat, PittMoss and Perlite.)
- https://pittmoss.com/technical-data/ (PitMoss Tech Sheet)
- https://pittmoss.com/story/ (Product website)

Notes From Growers:

Anyone?

<u>Pro Cal 3-0-0 + 20% Calcium</u>

Ingredients:

- 0.25% Ammoniacal Nitrogen
- 2.75% Other water-soluble Nitrogen
- 20% Calcium
- Derived From Soy Protein Hydrolysate and Calcium Carbonate

Build A Soil Description:

Ferticell® ProCal 3-o-o Plus 2oCa is an organic certified, fully soluble, dry fertilizer, specifically designed to supply this important nutrient as a foliar.

It is well known that calcium is phloem immobile, therefore it will not travel from leaves down to the fruit. However, the plant allocates the calcium traveling up from the roots, giving preference to leaf structures over fruit. A complete calcium nutrition program should consider increasing the availability in soil (source), in conjunction with a strategic reduction of the total demand by leaves (sink).

General:

Mineral sourced, fully soluble organic calcium Contain no risk salts or limiting nutrients Perfect complement for a good soil-based calcium program.

Usage:

15-20 grams per gallon

20-25 grams per gallon ONLY if using RO water.

Research:

• https://cdn.shopify.com/s/files/1/0248/9641/files/ProCalSDS.pdf?14717332241913324096 (SDS)

Notes From Growers:

Anyone?

Pro K 0-0-20

Ingredients:

• Soluble Potash (K2O): 20%

• Derived From: Fruit Rind Ash

Build A Soil Description:

Ferticell® Pro $K^{\text{\tiny TM}}$ 0-0-20, is an organic certified, fully soluble, plant-derived, liquid potassium fertilizer, designed to supply potassium in a higher plant usable form. Potassium, the third most used nutrient in plants, Pro $K^{\text{\tiny TM}}$ 0-0-20 plays important roles in plant functions such as regulating the opening and closing stomata, activating enzymes, balancing ions, translocating sugars, and osmosis. balancing ions, translocating sugars, and osmosis.

Pro $K^{\text{\tiny{TM}}}$ is plant sourced and fully organic, therefore all of its components are beneficial to plant activities. By utilizing our unique Ferticell® Technology manufacturing capabilities, we are able to produce Potassium

with little to no sulfur content. This greatly opens your application options and availabilities, unlike many other organic potassium fertilizers. Pro $K^{\text{\tiny TM}}$ has shown tremendous results in fruits, when used as a foliar application, bringing increased yield and quality to market with applications starting after bloom.

Fruits accumulate large amounts of K, so leaf symptoms are more likely and most severe as fruit approaches maturity during heavy crop years (Hanson, 1996)

General Benefits:

The excellent plant absorption rate
Rapid uptake through the leaf
Ideal where soil application is a limiting factor
Extremely phloem mobile within the plant
Easy to handle, consistent liquid solution
Plant-derived organic potassium
Works for both foliar or soil applications
Rapid uptake through the leaf provides an immediate plant response
No application risk of phytotoxicity
Cannot tie up in soils because of molecular derivation
Is a non-salt-contributor and does not contain chloride
Works on all types of plant life in all stages of the plant cycle
Instantaneous delivery of key nutrients
Works seamlessly with most pesticides and herbicides
Known to improve drought resistance

Cannabis & Potassium

During flowering, marijuana requires additional potassium, either concurrently with or immediately after lowering nitrogen and phosphorus levels to trigger the transition from vegetative growth to flower buds. A potassium deficiency in Cannabis may appear like a lack of nitrogen or phosphorus, as both conditions result in yellowing and dying of the lower leaves. Potassium can also be inhibited by high levels of sodium (Na) in soils. The condition is distinguished by the way it begins at the leaf edge or margin, at its worst, new leaves are reduced in size, and flower buds do not fatten.

Usage:

1 quart−2 gal/acre. For best results include Microelements[™] in the tank mix.

Research:

• https://ferticellusa.com/pro-k-0-0-20/ (Product Website)

Notes From Growers:

Anyone?

Pro Phos 0-20-0

Ingredients:

- Available Phosphate (P2O5): 20%
- Derived From Rock Phosphate
- ALSO CONTAINS NON PLANT FOOD INGREDIENT: 10% OF ALGAE EXTRACT (MICROBE FOOD)

Build A Soil Description:

Ferticell® Pro Phos 0-20-0 is certified for organic use, mineral sourced, liquid phosphorus fertilizer, designed to supply this key nutrient in an easily mineralizable form. Ferticell® uses micronization technology and algae extract components work together to supply this important nutrient to the plant.

Phosphorous is known to be immobile in the soil, as it rapidly joins with cations in the soil colloids to form insoluble compounds that resist leaching. This in turn requires the plant to constantly grow new roots to intercept new locations of phosphates.

Micronization allows ProPhos 0-20-0 to travel through the soil pores and into the root zone itself. Once there its tremendous surface area will reduce the energy required to mineralize its phosphate component. Its liquid provides flexibility and ease of application.

General:

Mineral-sourced organic phosphorous Contain no risk of salts or limiting nutrients High surface area for low energy mineralization Micronized liquid suspension for ease of use and translocation

Usage:

https://youtu.be/3UdiqZcoax8

Research:

• https://ferticellusa.com/pro-phos-o-20-o/ (Product Website)

Notes From Growers:

Anyone?

Promix w/ Biofungicide

Ingredients:

- Fine Texture Canadian Sphagnum Peat Moss
- Perlite Plug Grade
- Dolomitic and Calcitic Lime
- Wetting Agent
- Biofungicide (Bacillus Subtilis)

Build A Soil Description:

This is the most premium Plug and Germination grade pro-mix on the market.

Already inoculated with Bacillus to prevent damping off this is the go-to for smaller trays and commercial production.

BuildASoil Manufacturers living soil and leaves the sterile seedling soil to the experts.

General:

A solution for growers seeking to benefit from both the nutrient retention ability of vermiculite and a perlite content providing limited but proper drainage capacities. Combined with high-quality fibrous peat moss, this formulation is ideal for growers looking for a general-purpose medium that creates a well-balanced growing environment.

Usage:

Growing medium for seed trays Can be used as a medium for juvenile/adult plants with extra nutrition

Research:

• https://www.pthorticulture.com/en/products/pro-mix-fpx-biofungicide/#tab:product-specification (Product Website)

Notes From Growers:

Note: Build a Soil shows the Pro-Mix "B" as being bio fungicide. It seems that is no longer a product and Pro-Mix "BX" is bio fungicide + mycorrhizae. I could only find Pro-Mix "FPX" as being strictly bio fungicide.

Pumice

Ingredients:

• 3/8" x 1/4" Pumice

Build A Soil Description:

Pumice is created when super-heated, highly pressurized rock is violently ejected from a volcano. The unusual foamy configuration of pumice happens because of simultaneous rapid cooling and rapid depressurization.

Pumice is a natural, lightweight, volcanic material widely used in horticulture and hydroponics. The porosity of Pumice provides an abundance of air space-maintaining aerobic conditions around the roots. The inert nature allows fertilization to be controlled in a very exact manner.

The porous nature and natural surface tension around the outside of the Pumice particles allow it to hold water yet retain sufficient air space to optimize drainage and promote strong root growth.

Its insulating properties increase the temperature of the plant food favoring plant nutrition and growth. Because of its chemical and physical properties, Pumice promotes excellent nutrition distribution, strong root development, and excellent plant growth.

The absorbency of Pumice allows it to retain moisture and nutrients. The gradual release of moisture and nutrients enables a considerable reduction in irrigation time. Because BuildASoil Pumice is mined, it is clean and free of disease spores and weed seeds, which is an advantage over river pumice.

General:

Optimizes drainage

Retains and evenly distributes moisture and nutrients

Promotes strong root growth

Improves root aeration

Low Heavy Metals

Does not contain clay or organic material (i.e. montmorillonite, illite, kaolinite)

Minimizes root diseases

Clean from disease or weed seeds and environmentally friendly

Usage:

Use for potting soil at 15-40% by Volume Use Pumice As Direct Replacement For Perlite

Research:

• https://www.groworganic.com/blogs/articles/how-to-use-soil-amendments-pumice (More Info)

Notes From Growers:

Anyone?

Pumpkin Extract (Liquid BAS)

Ingredients:

<u>Derived From:</u> Probiotically Grown Pumpkins, Clean Mountain Water, EM-1, Home Made LABS (LactoBacillus Serum), Super Cera Powder, and Molasses. This is then fermented until the pumpkin is digested and extracted into the liquid and the molasses is consumed by the microbes to lock in the PH for stability and ease of use in the garden.

Build A Soil Description:

This pumpkin extract is made with love on a small farm in Paonia Colorado using natural probiotic farming practices.

General:

Since starting BuildASoil we've been preaching DIY techniques. This particular fermented plant extract is made from pumpkins along with the whole plant, and all the information we have about fermenting your own extracts suggests that you should start with the part of the plant that you wish to grow. For instance, if you wish to get faster vegetative growth you would ferment fast-growing green leaves to feed your plants. However, if you wished to grow bigger flowers, you should ferment flowers to feed to your plants. It is with this idea, we fermented pumpkin plants and flowers to be used as an all-natural bloom booster for your garden.

Usage:

Watering Plants:

1-3 ounces per gallon of clean water.

Foliar Spray:

1 ounce per gallon

Research:

• https://fermentedplantextracts.com/product/fermented-plant-extracts-pumpkin/ (Fermented Plant Extract Site)

Notes From Growers:

Anyone?

Pure Protein Dry (Organic Fish Aminos)

Ingredients:

- 15% Nitrogen
- 1% Available Phosphate
- 1% Soluble Potash

Derived From: Fish Protein Hydrolysate

Build A Soil Description:

Pure Protein Dry (PPD) is a powerful organic fish fertilizer containing amino acids and beneficial enzymes. It is a complete nutrient for plants and microbes with 15-1-1.

1 Pound will replace 5-7 Gallons of Liquid Fish.

40lbs will replace a 275-gallon IBL tote of Liquid Fish Hydrolysate and be better.

The codfish hydrolysate is cold processed and freeze-dried into 100% water-soluble powder that can be used with soil or any aeroponic, hydroponic, or drip irrigation system. With the addition of PPD to your current feeding regimen, you can achieve high yields and rapid results without compromising the health of your plants, soil, or customers.

General:

Most complete organic fertilizer, fulfills 70-80% of plant nutritional needs Highest amino acid profile, 80% L-amino acids, will not burn leaves or roots

PH Perfect, 15-1-1, high in macro- and micro-nutrients, high in enzymes Completely water-soluble and non-toxic to surrounding environment Rapid results, cost-effective, easy to apply, apply infrequently

Usage:

For quickest results, apply PPD as a **foliar feed** (spray the underside of leaves) at sunset or sunrise 2-3 times/week throughout entire growth cycle (vegetative and flowering/fruiting) up until 2 weeks before harvest.

Unrooted Cutting:

Apply 1 TSP/QT (Discard Excess Mixture)

Newly Rooted Plants:

Apply 2 TSP/QT (Discard Excess Mixture)

For a healthy root system and rhizosphere, apply as a **root drench** 1-2 times/week throughout the entire growth cycle.

For Veg:

Apply 1-2 TBSP/GAL

For Flower/Fruiting:

1 TBSP/5 Gallon (Through Week 7)

For an insane compost tea, add 1-2 scoops of PPD to tea during the beginning of the brewing process.

Research:

• http://organicagproducts.com/products/pure-protein-dry (Product Website)

Notes From Growers:

Anyone?

Q

Quillaja Saponaria 60/20 Extract Powder (Jay Plantspeaker)

Ingredients:

60:

- 60% Quillaja Saponaria Saponins
- 40% Inert ingredients

20:

- 20% Quillaja Saponaria Saponins
- 80% Inert ingredients

Build A Soil Description:

Q 60 - 60% Saponins

Q 20 - Guaranteed 20% Saponin Content Minimum

Speak your plant's language! BuildASoil proudly welcomes the famous Jay Plantspeaker to our LEGEND SERIES to help you communicate with your plants in a truly meaningful way. Maybe your plants won't speak back, but they will show you they are happy. Using saponins found in Quillaja Extract Powder for your garden is an absolute game changer. This natural wetting

agent makes water 'wetter' and foamy allowing for even spread. Made from the organic Quillaja (Q-Ya-Ha) Saponaria Tree, we can't speak highly enough of this plant extracted source of Saponins.

General:

Optimizes drainage

Retains and evenly distributes moisture and nutrients

Promotes strong root growth

Improves root aeration

Low Heavy Metals

Does not contain clay or organic material (i.e. montmorillonite, illite, kaolinite)

Minimizes root diseases

Clean from disease or weed seeds and environmentally friendly

Usage:

Q 60:

1/8 teaspoon per gallon water- Soil Drench/Foliar Spray 1/8 cup per 50 gallons water - Soil Drench/Foliar Spray

Mix with your favorite products to help them mix and apply better via root drench or foliar spray. Safe to use in every watering.

1 Kilogram will make roughly 2,000 gallons of saponified water.

Q 20:

1/8-1/2 teaspoon per gallon of water- Soil Drench/Foliar Spray 1/8-1/2 cup per 50 gallons of water - Soil Drench/Foliar Spray

Warning: Saponins May be harmful to fish. Please use with caution

Research:

- https://www.mdpi.com/389694 (Saponins from Quillaja Saponaria and Quillaja brasiliensis: Particular Chemical Characteristics and Biological Activities)
- https://www.sciencedirect.com/science/article/pii/S1875389210000
 258 (Ultrasonically assisted extraction of bioactive principles from Quillaja Saponaria Molina)

Notes From Growers:

I have heard and seen whisperings of using at a rate of 1tsp/gall for kill rate on gnats and as a foliar. (For Q 60)

R

Red Proso Millet Malt

Ingredients:

• Red Proso Millet Seed

Build A Soil Description:

Red Proso Malted Millet is full of Enzymes and Nutrients for your Sprouted Seed Tea.

This Colorado Grown Malted Millet Seed has already been sprouted and the enzymes preserved.

You can effectively use this to make your own Enzyme Rich Sprouted Seed Tea without all of the hassles of sprouting the seeds yourself. Not only that, but these seeds have been scientifically sprouted to produce the most enzymes possible and the practices used are far superior to the home sprouter.

General:

Usage:

(Note: currently experimenting and will update with more info)

Use 1 oz of Malted Millet Grain and blend with a few cups of water in your blender.

Strain the blended seed and water right into your 1-gallon bucket of water and then use it at full strength for your plants.

Basically, use about 1 ounce of seed per gallon of water.

At this rate, 1 Cup of Seeds will make a 4-5 Gallon Bucket of Enzyme Rich Water for your garden.

Research:

- https://library.ndsu.edu/ir/bitstream/handle/10365/9153/A805_20 https://library.ndsu.edu/ir/bitstream/handle/10365/9153/A805_20 oz.pdf?sequence=1 (Proso millet in North Dakota)
- http://www.globalsciencebooks.info/Online/GSBOnline/images/0706/FOOD_1(1)/FOOD_1(1)91-1000.pdf (Nutritionally important components of proso millet (Panicum miliaceum L.))

Notes From Growers:

Anyone?

Regalia - Biofungicide

Ingredients:

- Active ingredient: Extract of Reynoutria sachalinensis... 5 %
- Other ingredients... 95 %

Build A Soil Description:

All-natural biological plant extract to boost the plant defense mechanisms against certain fungal and bacterial diseases to improve overall plant health. Outstanding results controlling powdery mildew.

OMRI Listed!

General:

Regalia, a staple in IPM programs, is used preventatively for powdery mildew, blight, Anthracnose, and other bacterial diseases.

Regalia Biofungicide delivers better yield and improved harvest quality. Its ISR and SAR modes of action increase crop performance by stimulating a plant's innate ability to fight diseases. This fungicide offers preventative activity and early control of yield-robbing diseases that result in increased marketable yield and top profit on every acre.

Usage:

Use as a dip for transplants and drench the root zone for root strength. Apply 2-6 tablespoons per gallon every 7-10 days.

Do not exceed a Regalia spray concentration of 1% v/v Begin applying Regalia prior to visible disease symptoms or when the disease is first noted

Research:

- https://marronebio.com/products/regalia/#benefits (Product Page)
- https://marronebio.com/download/regalia-cg-label-all-states-except-california/ (Label)
- https://marronebio.com/download/cannabis-ipm-guide/ (Cannabis IPM Guide)
- https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.426.8175 &rep=rep1&type=pdf#page=107 (Induced responses by plant extracts from Reynoutria sachalinensis: a case study)
- http://www.stephentvedten.com/ (Tons of IPM info)

Notes From Growers:

Anyone?

Rice Hulls (Parboiled)

Ingredients:

Parboiled Rice Hulls

Build A Soil Description:

Studies have proven that rice hulls can efficiently replace perlite in your potting soil mixes and is much better for the environment.

We have independently heavily metal tested the contents and will only work with PBH for our rice hulls because of how clean they have tested. Beware of cheap rice hulls potentially full of heavy metals.

Parboiled rice hulls are produced by steaming and drying rice hulls after the milling process. This results in a lightweight and consistent product that is free of viable weed and/or rice seed

Usage:

We recommend using around 30% aeration. If going for long-term no-till we suggest using half Rice Hulls and Half Pumice or Lava Rock.

Research:

• http://www.gpnmag.com/sites/default/files/09 Grower101 GPN09 13%20FINAL.pdf (Rice Hull Study)

Notes From Growers:

Anyone?

Root Riot Cloning Pucks

Ingredients:

- Active ingredient: Extract of Reynoutria sachalinensis... 5 %
- Other ingredients... 95 %

Build A Soil Description:

Root Riot™ Cloning Pucks are suitable for both propagating cuttings and starting seeds. They are specially inoculated with both micro-nutrients, which help to nourish the young seedlings, and beneficial rooting fungi, which naturally aid the root development process in young plants.

These peat-based cubes have the ideal structure to create the right air and moisture levels and support rapid root development.

Usage:

http://buildasoil.com/blogs/news/15678004-how-to-clone-organically-dit ch-the-rooting-hormone-products (Usage Info)

In general, one seed/clone per puck and keep moist

Research:

• https://cdn.shopify.com/s/files/1/0248/9641/files/MSDS Root Rio t.pdf?2745024923739152748 (SDS)

Notes From Growers:

Anyone?

RooTech Cloning Gel

Ingredients:

Active Ingredients

- Indole-3 Butyric Acid... 0.55%
- Vitamin B-1... 0.00054%
- Inert Ingredients... 99.45%

Build A Soil Description:

Technaflora Rootech Cloning Gel is the strongest cloning gel money can buy and is powerful enough to propagate even the most difficult plants. Its premium formulation of hormones (0.55 percent IBA), vitamins, and nutrients promote rapid, healthy root development. Technaflora's unique manufacturing process creates an ultra-thick, smooth gel.

Rootech Cloning Gel is ideal for the propagation of the most hard-to-root plants. It can also be diluted with water for use in cutting machines, helping form roots more easily. Rootech Cloning Gel[™] is packaged in a ready-to-use, wide-mouthed container, into which several cuttings can be dipped at the same time without the risk of mess and spills. The gel format ensures ease of use while avoiding the dangers of inhaling dusty powders.

General:

A gel-based format (as opposed to powders) is effective in sealing cut plant tissue and preventing embolism & infection

A thick, rich formula, Rootech™ clings to plant cuttings even during top watering

At 0.55% concentration, Rootech™ is the most potent cloning gel in the hobby and commercial market

Mixes with water easily for dilution if desired or for use in propagation machines

Usage:

Dip cuttings into gel

Cloning Machine:

Rootech can be used when rooting plants with a cloning machine. Rootech is alcohol-free making it water-soluble. Add a level teaspoon (5g) per liter of water. Another option is dipping the cutting in Rootech before inserting the clone into the machine.

Research:

- https://www.technaflora.com/product/rootech-cloning-gel/ (Product website)
- https://www.academia.edu/download/75260496/j.1399-3054.1988.t bo2018.x20211126-11059-nsxbsj.pdf (Comparison of movement and metabolism of indole-3-acetic acid and indole-3-butyric acid in mung bean cuttings)
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1080855/pdf/plntp hys00694-0196.pdf (Effect of Exogenous Indole-3-Acetic Acid and Indole-3-Butyric Acid on Internal Levels of the Respective Auxins and Their Conjugation with Aspartic Acid during Adventitious Root Formation in Pea Cuttings)

Notes From Growers:

Anyone?

Rootwise Bio-Catalyst Enzyme Elixer

Ingredients:

Extracted from non-GMO bacteria, yeast, and fungi cultures, including:

- Amylase
- Cellulase
- Galactosidase
- Hemicellulase
- Invertase/Sucrase
- Lipase
- Peptidase
- Phosphatase
- Phytase
- Protease

Build A Soil Description:

Rootwise Bio-Catalyst Enzyme Elixer utilizes organisms found in the Rootwise Mycrobe Complete along with select yeast and fungi cultures, enzymes are produced, extracted, and concentrated into a non-living liquid form. This results in an enzyme profile that functions symbiotically with the organisms present in Mycrobe Complete soil inoculant.

These digestive enzymes are the catalysts of the soil biology process which enables nutrient uptake. When applied in tandem with a soil inoculant the enzymes allow the microbes to come out of dormancy and perform their tasks with increased viability and efficiency.

Establishing this ideal biological system aids in your crop's ability to thrive.

Usage:

3-5 ml per gallon.

1 Pint per Acre of Soil

2.5 Gallon Concentrate is recommended at 1 ml per gallon of water. This 2.5-gallon concentrate will make 10 gallons (SRP: \$1,800.00) of standard Bio-Catalyst Enzyme Elixer. This concentrate is much more stable.

Research:

- https://vimeo.com/216202808?embedded=true&source=video_title-wowner=23098120 (BAS Explanation Video)
- https://rootwisesoildynamics.com/bio-catalyst/ (Website Explanation)
- https://rootwisesoildynamics.com/wp-content/uploads/2020/01/Bi o-CatalystSDS.pdf (MSDS)

Notes From Growers:

Rootwise Bio-Phos (Biological Bloom Support)

Ingredients:

• Trade Secret Blend

Build A Soil Description:

A full-spectrum soil inoculant formulated with an emphasis on microbes that mobilize Phosphorus in all soils.

General:

A full spectrum soil inoculant formulated with an emphasis on microbes that mobilize phosphorus in all soils. Rootwise Bio Phos is designed for application during the flowering and fruiting of your crop's life cycle. As always, mix and apply with Bio-Catalyst to accelerate the biological functions in our inoculants.

Phosphorous availability relies on a complex process of microbial digestion and its associated enzyme production and exchange. Using targeted inoculants to assist this process requires more than one or two species of microbes. Building on the diversity of our flagship inoculant, "Mycrobe Complete," we developed Bio-Phos to address the multiple functions that are involved in the chain reactions of phosphorus mobility.

As always, mix and apply with Bio-Catalyst to accelerate the biological functions in our inoculants.

Usage:

Simple Drench:

Initial Inoculation:

Mix 2 Tsp into 5 Gal of water and apply to the root zone of each container. <u>Follow-up doses:</u>

Mix 1 Tsp into 5 Gal of water and apply to root zone. Repeat every 2 weeks.

Large Garden and Farm Application:

Apply at a rate of 6gms/yd of soil mix or 1000ft2 of surface area. Use 110gms/10,000ft2 of green-house. Use 110gms/acre for row crops in native soil.

Research:

- https://rootwisesoildynamics.com/bio-phos/ (Website Explanation)
- http://rootwisesoildynamics.com/wp-content/uploads/2018/01/Bio-Phos-SDS.pdf (MSDS)

Notes From Growers:

Anyone?

Rootwise Mycrobe Complete

Ingredients:

• Trade Secret Blend

Build A Soil Description:

ROOTWISE MYCROBE COMPLETE is "A diverse inoculum of Beneficial Microbes and Mycorrhizae which establish soil-to-root relationships that may assist nutrient uptake, pathogen resistance, and overall plant vigor."

General:

Improving nutrient availability and plant health through active soil biology is achieved through balance.

Establishing the ideal symbiotic relationship between our crop's roots and the soil relies on a diverse population of bacteria and fungi. Each unique microbial function group is responsible for specific duties that trigger a chain reaction resulting in enzymatic exchange, metabolite production, and efficient uptake of nutrients. The culmination of this process results in our crop's ability to achieve maximum genetic potential.

How is this accomplished? Most of us are familiar with the principles of balancing nutrients within our soils through fertilization and amending. The same method is applied to biological inputs. Consistent, balanced doses have the greatest benefit. As always, heavy doses of any one input, whether it be a macronutrient or a single microbe, can cause an imbalance somewhere in the processes of overall plant health.

Employing full-spectrum biology is an invaluable tool for managing your living soil systems. This approach is the foundation for the microbial populations found in Rootwise Mycrobe Complete. Carefully chosen to achieve a balanced exchange between plant and soil, multiple species from each function group are present in agricultural strength populations. This inoculant works equally well for jump starting biological actions in newly built soil mixes as it does maintaining ongoing populations in well established soils.

Usage:

Our dilution rates make a very concentrated solution. Apply efficiently.

Initial Innoculation:

1 tbs in 5 gallons of waterLarge Gardens:6 g per cubic yard of soil

Follow up:

1.5 tsp in 5 gallons of water, repeat every 2 weeks Large Gardens: 3 g per cubic yard of soil

Transplant:

1 tsp per gallon of water Submerge roots and transplant

Tips:

After initial mixing, allow sufficient time (1/2 hour) for microbes to come out of dormancy before applying.

Prior to application, ensure your soil or medium is sufficiently saturated, then use just enough liquid concentrate to penetrate root zone. This ensures your microbes have a hospitable environment in which they can immediately colonize.

If you wish to incorporate the inoculant "dry" into your soil mix, make sure your soil has sufficient moisture and will be immediately planted whether you use a cover crop or main crop. Inoculated soils that sit in totes or bags inevitably have inconsistent moisture levels and temperature zones, all leading to less than ideal survivability for soil biology.

It is most effective to bring the microbes out of dormancy using our recommendations and applying as a root drench.

Research:

- https://rootwisesoildynamics.com/mycrobe-complete/ (Website Explanation)
- https://rootwisesoildynamics.com/wp-content/uploads/2020/01/M ycrobeCompleteSDS.pdf (MSDS)
- https://vimeo.com/216202808?embedded=true&source=video title &owner=23098120 (BAS Video)

Notes From Growers:

Anyone?

S

Sea-90 Ag Mineral Foliar

Ingredients:

• Solar Dehydrated Sea Water

Build A Soil Description:

SeaAgri is inspired by the research of Maynard Murray MD, Weston Price DDS, William Albrecht Ph.D., Arden Anderson MD, Jerry Burnetti, author and renowned speaker, Robert Cain, President SeaAgri, inc, and Hugh Lovel, multi-disciplinary scientist. SeaAgri is dedicated to fulfilling Dr. Murray's lifelong dream of improving human health by introducing "Sea Energy Agriculture" to gardeners, ranchers, and farmers throughout the world.

All SeaAgri products are produced from the Sea of Cortez containing 92 minerals and trace elements, plus more than 50,000 organic compounds. Scientific data shows that SEA-90's minerals and trace elements stimulate, feed, and enhance micro flora populations in soil, and as little as one ounce of SEA-90 Essential Elements provides nearly complete mineral nutrition.

General:

SEA-90 fertilizer is natural mineral crystals produced by solar dehydration of seawater trapped in retention ponds in a very arid and pristine coastal region devoid of industry or agriculture. The particular sea utilized by SeaAgri is considered one of the most diverse in marine life and minerals on earth.

The full spectrum minerals and trace elements contained in SEA-90 are exactly proportioned and balanced as in seawater to sustain optimum biological life. Consider that the elements in seawater are at essentially the same ratios as human blood and that sea life living in pure and balanced ocean water seems immune to most cancer and other degenerative diseases.

SEA-90 fertilizer is the product of 40 years of extensive research by Dr. Maynard Murray and SeaAgri proving that soils and crops enhanced or remineralized with full-spectrum sea minerals and trace elements grow crops superior to those grown solely with conventional fertilizers.

SEA-90 can be broadcast directly on the soil surface and allowed to absorb into the soil or dissolved and sprayed directly onto growing crops and plants.

Usage:

Cannabis:

Field Broadcast:

50-120 lbs SEA-90 per acre pre-planting

Foliar Spray:

5 lbs SEA-90 per acre in 20 gallons of water 1 tsp (6 grams) per gallon of water

Compost Tea:

1 lb SEA-90 per 100 gallons of brew

https://seaagri.com/product/sea-90-foliar-hydroponic-fertilizer/# (More application info on right side of the page)

Research:

• https://seaagri.com/doctor-maynard-murray/?v=400b9db48e62 (Sea Energy Agriculture is the discovery of Maynard Murray MD, a

biochemist, research scientist and medical doctor specializing in ENT medicine.)

- https://seaagri.com/research/ (Tons of Info on their Website)
- https://seaagri.com/seaagri-licenses-certificates (Certifications)

Notes From Growers:

Anyone?

Soap Nut/ Soap Nut Powder (Natural Saponin)

Ingredients:

- Soap Nuts
- Soap Nut Powder

Build A Soil Description:

Soap nuts are found in both the eastern and western hemispheres, but are native to India and Nepal. They have recently become a popular environmentally friendly alternative to chemical detergent, and are a gentle option for those with allergies to chemicals in regular detergents. Soap nuts contain saponin, a natural detergent. The soap nut shell absorbs water and releases the saponins which circulate as a natural surfactant in the wash water, freeing dirt, grime, and oils from clothing. There is considerable discussion as to what variety of Soap Nuts is preferable for use as a laundry soap alternative. Any Soap Nut from the genus Sapindus will work just fine as they all have Saponin-producing properties, hence the genus name Sapindus.

General:

Soap nuts can be used for anything that you would normally use detergent for; washing the car, windows, etc. Some people have used them as a base for shampoos and hand lotions and as an all-purpose cleaner for around the home. They can be used as an anti-microbial for septic systems. Jewelers in India and Indonesia have used them to remove tarnishes from jewelry and other precious metals for many centuries.

Usage:

Just a few nuts (4-6) in a cotton muslin bag should work for an entire load. There will be little or no bubbles during the wash cycle, and it will smell lightly similar to apple cider. They can be used several times and then composted afterward. They will look mushy and grey when they need to be changed. They can also be used in a powder form as a cleansing cream by adding a small amount of water.

Research:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7334665/
 (Foaming properties, wettability alteration and interfacial tension reduction by saponin extracted from soapnut (Sapindus Mukorossi) at room and reservoir conditions)

Notes From Growers:

Anyone?

Sodium Molybdate Dihydrate

Ingredients:

• Sodium Molybdate Dihydrate

Build A Soil Description:

"Sodium molybdate, Na2MoO4, is useful as a source of molybdenum.[2] This white, crystalline salt is often found as the dihydrate, Na2MoO4·2H2O." -Wikipedia

Usage:

Unable to find info

Research:

- https://cdn.shopify.com/s/files/1/0248/9641/files/SPECSodium Molybdate Dihydrate.pdf?11548335492949494277 (Spec Sheet)
- https://cdn.shopify.com/s/files/1/0248/9641/files/MSDSSodium M olybdate Dihydrate.pdf?11548335492949494277 (MSDS)

• https://bisley.biz/news/common-industrial-commercial-uses-for-sod-ium-molybdate/ (Common Industrial & Commercial Uses For Sodium Molybdate)

Notes From Growers:

Anyone?

Soybean Meal

Ingredients:

• Organic Soybean Meal

Build A Soil Description:

In the past, we've recommended staying away from Soybean meals due to the heavy use of pesticides and GMO but we think this product is different.

We are working on getting full testing and analysis, but for right now we are trusting the CDFA Organic Certification.

We've recently found a new supplier of Organic Soybean Meal.

Mechanically Extruded - Not Processed with Chemicals like many products.

Usage:

Soybean meal has a typical analysis of 7-1-2 (N,P,K) and is naturally a slow-release fertilizer. Typical use is 1-2 pounds per 100 square feet of garden. Many gardeners like it due to its slow-release nature as they only have to apply it once per year.

Research:

https://globalacademicgroup.com/journals/approaches/S.%20ANBU
 https://globalacademicgroup.com/journals/approaches/S.%20ANBU
 https://globalacademicgroup.com/journals/approaches/S.%20ANBU
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Notes From Growers:

Sprouted Hemp Seed

Ingredients:

• Sprouted Hemp Seed

Build A Soil Description:

All natural artesian sprouted seeds.

Usage:

Seed tea/top dress

Research:

• https://www.queenofthesungrown.com/post/enzyme-tea (Blog post about enzymes)

Notes From Growers:

Reviews: Anon: "Right when I opened the bag I can see many seeds that were unmilled(no big deal). As I looked closer I can see these unmilled seeds were indeed obviously not sprouted so it got me thinking of the quality/germination rate. Being the bag was milled it is impossible to find out so this is purely just my scenario, not a bash. All this being said I ground them down further into a cup of water and threw it into 10 gallons of water, bubbled it, and 10 hrs later fed my plants/seedlings with it and the next day had immediate results so the enzymatic potential is great."

Sprouted Quinoa Ferment

Ingredients:

- Filtered Water
- Organic Molasses
- Organic Sprouted Quinoa
- Lactic Acid Bacteria

Build A Soil Description:

It is fermented using lactic acid bacteria (LAB) and molasses to effectively break down the sprouted and milled quinoa seed. Our quinoa flour is sprouted and dried before milling in stone mills. The fermentation process allows for the nutrients and beneficial properties of the quinoa to be readily available. There are 21 free amino acids present in this ferment based on lab testing. Therefore, when you apply the fermented extract by spraying the foliage or drenching the soil, the plants can uptake it immediately.

General:

Stimulate life in your soil, Reduce plant energy requirements through amino acids, Enhance crop growth organically.

Usage:

Use 1 oz -4 oz of ferment per gallon of water. It can be used as a drench or foliar application.

Research:

- https://www.mdpi.com/1471528 (Nutritional Composition and Bioactive Components in Quinoa (Chenopodium quinoa Willd.) Greens: A Review)
- https://www.mdpi.com/983166 (Impact of fermentation on phenolic compounds and antioxidant capacity of quinoa)

Notes From Growers:

Anyone?

Sulfur 90% Ag

Ingredients:

- 90% sulfur
- 10% Bentonite (Binder)

Build A Soil Description:

Concentrated source lowers pH faster than any other soil amendment. Easy-to-spread, dust-free formulation contains 90% sulfur with 10%

bentonite as a binder. As bentonite absorbs moisture from the soil, the granules swell and break apart, releasing the sulfur particles.

Usage:

Proper rates should be determined by a soil analysis
Use at rates of 1-5 lb/100 sq ft or 200-2000 lb/acre
A little sulfur is a stimulant to soil micro-life, an overdose is toxic. Use care during the application, some are sulfur-sensitive.

Research:

• ---

Notes From Growers:

Anyone?

Sulfur Powder (Alpha Chem.)

Ingredients:

• >99.5% Sulfur

Build A Soil Description:

Sulfur has many uses including petroleum refining, organic and inorganic chemical manufacturing, matches, along with a wide range of other uses. Sulfur is not toxic as is, but is very toxic when it burns and produces sulfur dioxide.

Usage:

?

Research:

• http://alphachemicals.com/msds specs (MSDS/Spec Sheet)

Notes From Growers:

${ m T}$

Tweetmint Enzyme Plant Wash

Ingredients:

- Purified water
- Anionic/nonionic surfactant blend
- Glycerin
- Enzymes
- Peppermint oil
- Sodium borate

Build A Soil Description:

TweetMint Enzyme Plant Wash is the perfect household cleaning companion; safe, non-toxic and strong enough for any task. It is biodegradable and will not contaminate people or the environment. Experience the awesome power of all-natural activated enzymes.

Effective: TweetMint works more effectively than conventional chemical cleaners as it removes stains all the way down to its source. The enzymes break down stains and fully remove them for deeper cleaning. TweetMint Enzyme Cleaner works especially well on organic stains, such as food spills & pet messes. TweetMint is a great de-greaser, breaking down the toughest oils from common grease to mechanic's oil.

Quality Ingredients: TweetMint has some food-grade quality ingredients: enzymes & glycerin. TweetMint has some kosher ingredients: peppermint oil & glycerin. Natural ingredients: enzymes & peppermint oil. Plant-based ingredients: anionic/nonionic surfactant blend & glycerin. Naturally-occurring ingredient: sodium borate.

Biodegradable: The TweetMint formula itself is biodegradable, while its bottle & packaging can be recycled. TweetMint leaves no residual, and is natural & non-toxic. TweetMint does not harm people, pets, or our shared environment; when used as directed.

Gentle on Surfaces: While being tough on stains and grime, TweetMint is non-corrosive and will not harm: porcelain sinks/toilets, bathtubs, counters, wood floors, walls, furniture, leather, carpets/rugs, windows/glass, cars, copper/silver, mirrors, grout, and other surfaces.

Odor Eliminator: TweetMint Enzyme Cleaner is a great odor eliminator. For example, pet stains can be smelly making them much harder to clean. Simply spray the stain with TweetMint before cleaning to eliminate the foul odors to make the task much easier. TweetMint is tough enough to eliminate the strongest of odors, including skunk spray and cat urine. TweetMint can also be misted or used in humidifiers to eliminate airborne odors.

Drain Cleaner: TweetMint can be used to clean drains safely, rather than using typical acid-type drain cleaners, which can be corrosive and harmful to pipes.

Mold & Mildew: TweetMint Enzyme Cleaner can be used to clean mold & mildew throughout homes, schools, and businesses. Simply spray directly onto mold & mildew and it wipes away easily.

Super-Concentrate: TweetMint Enzyme Cleaner is a concentrate – a little goes a long way when diluted with water. One gallon of TweetMint will produce up to 256 light-dilution batches of cleaner. For example, the light dilution for TweetMint is only 0.5 oz. (1 tbsp) per gallon of water.

Pest Control: TweetMint Enzyme Cleaner is registered as Minimum Risk/25(b)/EPA-Exempt for use in pest control in the state of Michigan. Here is the registration number for reference: 6347-25B-5

Precautions: Avoid contact with eyes to prevent irritation; immediately flush with water if contact occurs. In case of accidental ingestion, contact a physician. Do not allow children to handle.

Usage:

Use 1/2 ounce per gallon of water as prevention and up to 1 ounce per gallon for eradication

Research:

- https://cdn.shopify.com/s/files/1/0248/9641/files/44_Organic_Agriculture.pdf?18193410103220460709 (IPM Guide)
- http://www.stephentvedten.com/ (Tons of IPM info)
- https://www.safesolutions.com/product/tweetmint-enzyme-cleaner/ (Product Website)

Notes From Growers:

Anyone?

U

Universal o-o-1

Ingredients:

- Soluble Potash... 1%
- 25% Algae Extract

Build A Soil Description:

Ferticell® Universal is a highly-concentrated solution of freshwater algae extract. Agroplasma Inc.® uses only food-grade unicellular algae and bacteria. Ferticell® Universal utilizes a proprietary extraction process from these non-living organisms to promote high activity in native micro-flora populations with food sources such as carbon, and other plant beneficial materials. The plant beneficial materials present in Ferticell® Universal differ from synthetic products in that the ratios of nutrients and plant beneficial materials in a natural product are more balanced for consistent response.

Unlike kelp or seaweed products, Ferticell[®] Universal uses unicellular algae, which is cultured in fresh water from a consistent parent culture, to reduce both the salt content and the inconsistencies experienced in kelp and seaweed products. Culturing the organisms in freshwater is done to reduce the risk of salt burn when used in foliar applications, and to reduce the salt added to the soil from a fertility program. Ferticell[®] Universal is taken up by the plant via the leaf stoma or through the root system. Once

inside the plant cell structure, the nutrient-rich algae cells attach themselves to individual plant cells, and the nutrients are transferred from the alga cell to the plant cell in a balanced form. This process is known as Inter-Cellular Exchange (I.C.E. Technology). Ferticell® Universals algae cells that have not been utilized by the roots will remain in the soil and be used as a food source by soil microbes, greatly increasing the living component of the soil. The algae cells also break down minerals in the soil that are blocked or tied up for various reasons, while processing chemical forms of nutrients so that they are assimilated into the plant more efficiently.

General:

Provides faster and more efficient fertilizer assimilation through both foliar and soil applications

Increased root development by promoting more lateral and deeper roots Lower salt content than seaweed or kelp products, reducing salt inputs and burn potential

Improved quality of fruit and vegetables through better absorption of nutrients

Increased flowering and decreased flower loss
Develops more homogenous fruits and reduces fruit fall
Foliar and soil applications with any standard equipment
Increased yield production at economic rates
Balanced hormonal package for healthy growth curve
Provides energy for the plant to focus on physiological functions
Increased resistance to abiotic stress

Usage:

5-10 ML PER GALLON OF WATER

Research:

• https://cdn.shopify.com/s/files/1/0248/9641/files/Universal_0-0-1 SDS.pdf?16584246343609083622 (SDS)

Notes From Growers:

V

Venerate CG - Bioinsecticide

Ingredients:

- Heat-killed Burkholderia spp. strain A396 cells and spent fermentation media*... 94.46%
- Other Ingredients... 5.54%

Build A Soil Description:

Your biological go-to insecticide, Venerate® CG is your in-season insecticide with multiple modes of action to beat down pests impacting the health and productivity of your plants. Excellent IPM for spider mites, russet mites, aphids, and thrips.

When ingested, Venerate CG works through exoskeleton degradation (active against eggs, nymphs, and adults), and provides molting interference.

Usage:

Apply 2-5 tablespoons per gallon at 7-day intervals. No limit to the number of applications per season. Multiple modes of action: exoskeleton degradation, ingestion, and molting interference. Alternate with Grandevo® CG.

Research:

- https://marronebio.com/download/venerate-cg-label/ (Label)
- https://marronebio.com/download/venerate-cg-sds/ (SDS)
- https://marronebio.com/download/omri-certificate-venerate-cg/ (OMRI Cert.)

Notes From Growers:

Vermiculite

Ingredients:

• Organic vermiculite!

Build A Soil Description:

This OMRI-listed material is great for organic gardening. It is widely used as a component in growing media for professional growers, refractory, lightweight concrete, fire-proofing, and packaging.

Usage:

Vermiculite is a great addition to potting soil in containers, helping to improve drainage and moisture retention. It's an ideal medium to use for storing bulbs or root crops over winter, as it absorbs any moisture that might cause decay. It's a good addition to recently seeded lawns. A 1/4-inch layer of vermiculite helps keep grass seed from drying out while it germinates. It's even a good addition to worm bins, providing grit that helps worms digest food.

Research:

• https://www.thespruce.com/how-to-use-vermiculite-5089699 (How to Use Vermiculite)

Notes From Growers:

Anyone?

W

Wettable Sulfur (BAS)

Ingredients:

• Organic vermiculite!

Build A Soil Description:

BuildASoil brings you sulfur that you can introduce into your soil as a soil amendment. Wettable sulfur, and sulfur in general, is a tool to lower the pH levels in the soil. Too much, the soil shows too much salt, and the plants suffer, so measurement and experience will be helpful.

Great as a pesticide/fungicide.

Usage:

Foliar Applications:

1-2 teaspoons per gallon for normal application.

1-2 Tablespoons for maximum application.

Research:

• http://npic.orst.edu/factsheets/sulfurgen.html (General Info)

Notes From Growers:

I have used another brand of wettable sulfur for IPM, worked for thrips, and has kept PM of my plants.

Wetting Agent

Ingredients:

- Filtered water
- Canola oil
- Potassium hydroxide

Build A Soil Description:

Wetting Agent is a natural surfactant and emulsifier that can be added to your weekly IPM or foliar fertilizer program. It will aid in the overall penetration, coverage, and effectiveness of the substances used in your IPM or fertilizer program.

How to Make:

Items Needed:

• Heat-Resistant Container with Air-Tight Lid

- Kitchen Scale
- Immersion Blender or Drill With Mixing Attachment
- Bowls for Weighing Out Inputs
- Potassium Hydroxide (KOH)
- Canola Oil
- Filtered Water

This recipe will make approximately 3.5 gallons of JADAM Wetting Agent.

- Measure out 400 grams of potassium hydroxide in a bowl and measure out 312.5 grams of filtered water.
- Place the water in the heat-resistant container. Then, pour the potassium hydroxide in and immediately cover with a lid, as this is a caustic chemical reaction taking place that can be dangerous and will produce temps up to 220 degrees. Swirl the container around to fully dissolve the potassium hydroxide.
- Measure out 76 fl. oz. of canola oil in a bowl. Pour the canola oil into the heat-resistant container with the potassium hydroxide solution.
- Using the blending tool, mix the solution until a thin mayonnaise consistency is formed.
- Place the lid on the container and allow it to sit for 3 days or until it becomes hard like butter. If it does not harden up, re-mix the solution with the blending tool.
- Add 84.5 fl. oz. of filtered water to the container and mix gently with the blending tool. Make sure all clumps are off the bottom and side of the container.
- Add an additional 253.6 fl. oz. of filtered water to the container. Stir manually.
- Place the lid on the container and allow it to melt slowly for 24 hours and it will be complete. Store in a tightly sealed container. It has no expiration date

Usage:

Dilute 1 to 4 ounces per gallon of water. Mix well. Foliar spray on plants or add to your foliar fertilizer program. *Must be foliar sprayed

Research:

• https://growingorganic.com/shopping/product/wetting-agent/ (Product Website)

Notes From Growers:

Anyone?

X

Y

Yah-Whey (Thrive Probiotics)

Ingredients:

- Purified Water
- Organic Molasses
- Yeast Cultures
- Lactic Acid Bacteria
- Humic Acid

Build A Soil Description:

Researching Kefir quickly leads one to find a myriad of legends pertaining to this ancient, thousands of year old, practice of fermenting milk to produce a stable probiotic. This probiotic is legendary for its health properties.

Whey from kefir grains has a complex microbial biology composition with polysaccharides, nutrients, minerals, and proteins. These fermented compounds create a diverse probiotic whey for your plants and soil.

Soon you'll be shouting, YAH WHEY!!!!! As your plants pray to the light.

General:

So what does that have to do with growing plants?

Organic matter in the garden is broken down by probiotics, but an often forgotten component is the Nitrogen that the breakdown requires to speed up the process. Composting is all about Carbon Nitrogen ratios.

Organic Potting soils can have a high carbon and when amending with rice hulls and organic amendments the soil can have an elevated C: N ratio which means the soil will be taking Nitrogen for a while before it starts to release it again.

Now that you understand the problem, you can clearly see the solution.

YAH WHEY! When you use stabilized Kefir Whey designed by Thrive you will be simultaneously feeding the soil much-needed amino proteins (Nitrogen) That will help the breakdown of nutrients and also make readily available food for your plants.

Once you see the level of calcium, nutrients, and vitamins that are contained within kefir and combine that with the knowledge of the diversity of lactobacillus cultures present you can really start to understand that this is more than your average product.

Usage:

Drench/Foliar:

1-4 Ounces per gallon of water.

Research:

• https://www.frontiersin.org/articles/10.3389/fmicb.2015.01177/full (Milk kefir: composition, microbial cultures, biological activities, and related products)

Notes From Growers:

Anyone?

Yellow Corn Seed (Heirloom Organic)

Ingredients:

• Organic Yellow Corn Seed

Build A Soil Description:

Organic Yellow Corn Seed is Certified Organic and totally untreated this is a food-grade product that is rare to find.

Enzymes are a catalyst that assists the other nutrients and help supercharge your soil.

Corn is known to be high in Cytokinins.

"Cytokinins will increase the girth and tinsel strength of the side branches and stronger branches will produce larger and heavier flowers." -Clackamas Coots

Instead of buying an expensive enzyme product in a bottle, you can make your own!

Cytokinin Functions

A list of some of the known physiological effects caused by cytokinins are listed below. The response will vary depending on the type of cytokinin and plant species (Davies, 1995; Mauseth, 1991; Raven, 1992; Salisbury and Ross, 1992).

Stimulates cell division.

Stimulates morphogenesis (shoot initiation/bud formation) in tissue culture.

Stimulates the growth of lateral buds-release of apical dominance.

Stimulates leaf expansion resulting from cell enlargement.

May enhance stomatal opening in some species.

Promotes the conversion of etioplasts into chloroplasts via stimulation of chlorophyll synthesis.

Usage:

Super Sprouted Tea Version 2.0: (Credit to some old Coot) 56 Grams Corn Seed (2 Ounces)

Soak for 12-24 hours with Clean Water

Sprout seeds until the tail is 1/2 inch long or about 1-2 days.

Blend in a food blender or whatever you have with a little bit of water to help it blend.

Add this to 5 gallons of water and you have one of the world's most nutritious Plant Enzyme Teas available for PENNIES.

Research:

- https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 <a href="https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
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 <a href="https://onlinelibrary.wiley.com/doi/10.1111/j.1365-3040.2009.01940
 <a href="https://onlinelibra
- https://www.biologydiscussion.com/plant-physiology-2/plant-horm-ones/cytokinins-history-function-and-uses/44749 (Cytokinins: History, Function and Uses)
- https://www.frontiersin.org/articles/10.3389/fpls.2019.01777/full (Role of Cytokinins for Interactions of Plants With Microbial Pathogens and Pest Insects)
- https://gkscientist.com/functions-of-cytokinins-in-the-plant-body/ (What Are Cytokinins? Discuss the functions of Cytokinins in the plant body?)

Yucca Extract (Therm X-70)

Ingredients:

• Concentrated Yucca Extract

Build A Soil Description:

Therm X-70 is a natural wetting agent derived from yucca. It contains 100% concentrated yucca extract, 20% Saponins, and 80% other water-soluble substances from Yucca. This extract helps plants overcome adverse water conditions and is a great spreader and sticker for other sprays. Use Therm X-70 to increase your crop's ability to germinate and establish in stressed conditions, as well as increase its water and fertilizer uptake.

Therm X-70 is liquid and smells very sweet, The Brix level is 70.

General:

Protects Against: Heat and Water Stress Soil Compaction Poor Water Penetration Salinity and Alkali The use of ThermX has been proven to result in:

Increased water penetration

Increased fertilizer uptake

Increased permeability of heavy clay soil with salt and alkali problems

Improved drainage, reducing salinity

Increased water intake

Increased root growth

Why use ThermX?

Growing conditions are never perfect. Crops are subject to many kinds of stress conditions that limit production and quality. ThermX helps plants overcome these stresses.

Action in Soils:

Steroid saponin is a natural wetting agent that reduces surface tension. This action enhances better:

Water penetration into the soil

Subbing of beds

Drainage of excess water from the root zone

Action on Plants and Trees:

Under stress conditions, steroid saponin increases the plant's ability to utilize water more efficiently, resulting in:

Improved seed germination and stand establishment

Increased water uptake

Improved fertilizer uptake

Irrigation Water and Nutrient Losses:

Water and nutrients are wasted if they aren't used by the plants. The root systems are often denied the water and nutrients needed because of soil compaction, poor water penetration and subbing, and the action of excess salinity and alkali. ThermX relieves these stresses, increasing crop yields. American Extracts supplies different agriculture products to suit everyone's application needs. All are made from 100% natural yucca. The products are registered with the California Department of Agriculture and with Organic Materials Review Institute.

Usage:

Directions for containers:

For Potting Soil:

Use At 2-3 ml Per Gallon of Clean Water.

For Foliar Spray:

Use at 2-3 ml Per Gallon

Use when building new soil to properly moisten the peat. Use when soil is not taking water fast enough and is acting hydrophobic Use in any Foliar Spray for increased wetting action.

DIRECTIONS FOR ACREAGE USE:

SOIL:

Use one pint (16 oz.) per acre.

PROBLEM SOIL:

For saline, alkali, and water penetration problems, use 1 quart (32oz.) per acre, first application.

ROW CROPS:

Mix with starter or side dress fertilizer. Can also be metered into the first irrigation water.

TREES AND VINES:

Dilute in sufficient water for coverage and spray soil surface to be irrigated or meter into first irrigation water.

PLANTS:

Use eight fluid ounces (8 oz.) per 100 gallons of water to reduce surface tension and improve wetting in agricultural sprays.

TRANSPLANTS:

Mix with transplant water to apply one pint (16 oz.) per acre

Research:

• https://www.mdpi.com/1420-3049/26/17/5251/pdf (Structure, Bioactivity and Analytical Methods for the Determination of Yucca Saponins)

Notes From Growers:

Yucca Meal (ThermX-15M)

Ingredients:

• Organic vermiculite!

Build A Soil Description:

ThermX-15M Yucca Extract is a dry yucca extract powder that is perfect for mixing into potting soil. When used in potting soil with fresh peat moss it can help the potting soil take water and help break the hydrophobic tendencies of peat moss.

General:

Protects Against: Heat and Water Stress Soil Compaction Poor Water Penetration Salinity and Alkali

The use of ThermX has been proven to result in:

Increased water penetration

Increased fertilizer uptake

Increased permeability of heavy clay soil with salt and alkali problems Improved drainage, reducing salinity

Increased water intake

Increased root growth

Why use ThermX?

Growing conditions are never perfect. Crops are subject to many kinds of stress conditions that limit production and quality. ThermX helps plants overcome these stresses.

Action in Soils:

Steroid saponin is a natural wetting agent that reduces surface tension. This action enhances better:

Water penetration into the soil Subbing of beds Drainage of excess water from the root zone **Action on Plants and Trees:**

Under stress conditions, steroid saponin increases the plant's ability to utilize water more efficiently, resulting in:

Improved seed germination and stand establishment

Increased water uptake

Improved fertilizer uptake

Irrigation Water and Nutrient Losses:

Water and nutrients are wasted if they aren't used by the plants. The root systems are often denied the water and nutrients needed because of soil compaction, poor water penetration and subbing, and the action of excess salinity and alkali. ThermX relieves these stresses, increasing crop yields. American Extracts supplies different agriculture products to suit everyone's application needs. All are made from 100% natural yucca. The products are registered with the California Department of Agriculture and with Organic Materials Review Institute.

Usage:

1 Teaspoon per cubic foot1/2 cup per cubic yard

Research:

- http://americanextracts.com/wp-content/uploads/2013/05/ThX15-MSDS.pdf (MSDS)
- https://www.mdpi.com/1420-3049/26/17/5251/pdf (Structure, Bioactivity and Analytical Methods for the Determination of Yucca Saponins)

Notes From Growers:

Anyone?

Z

Zinc Sulfate

Ingredients:

• Zinc Sulfate

Build A Soil Description:

N/A

General:

https://bisley.biz/news/what-is-zinc-sulfate-used-for-in-agriculture/

Usage:

https://bisley.biz/news/what-is-zinc-sulfate-used-for-in-agriculture/

Research:

- https://cdn.shopify.com/s/files/1/0248/9641/files/MSDSZinc_Sulfa te_Monohydrate.pdf?809867804577282492 (MSDS)
- https://cdn.shopify.com/s/files/1/0248/9641/files/SPECZinc_Sulfate.pdf?14223143085232804179 (Spec Sheet)
- https://bisley.biz/news/what-is-zinc-sulfate-used-for-in-agriculture/ (Agricultural Use)

Notes From Growers: