

Advancing  
Eco Agriculture



# **Vegetable and Fruit Grower's Guide**

to Regenerative  
Production

Advancing Eco Agriculture (AEA) helps farmers succeed by growing crops that are more productive, resilient and profitable. We provide data-based agronomic consultation and a range of powerful liquid mineral nutrition and biological products.

## Contents

---

Seed Treatments	02
Soil Primer Category	04
Vegetable Applications	06
Fruit Applications	11
Further Considerations	16



## Grower's Guide

---

Welcome to a new formula for success. We've helped countless fruit and vegetable growers succeed using regenerative practices. This booklet presents our most essential products in easy-to-use formulas that are accessible to growers of any scale—from small, diversified market gardens to large-scale field crops—both organic and conventional.

Our regenerative program can help:

- Boost yields
- Increase pest and disease resistance
- Reduce pesticide and fertilizer use
- Build lasting soil fertility
- Improve produce quality: size, color, and flavor.

Over the years we have improved and simplified our product line. We are pleased to provide a number of simple formulas here that will move the needle without breaking the bank. These applications should be considered essential for any fruit or vegetable operation. We can provide more advanced advice through our agronomy consulting services. Contact us to learn more.



# Seed Treatments

## BioCoat Gold™

BioCoat Gold™ provides the nutrients and soil microbes needed during germination so seeds can get off to the best start possible. BioCoat Gold™ allows newly emerged roots to be immediately inoculated with vital microbial life, setting the root system up for sustained nutrient access and availability throughout the growing season. BioCoat Gold's low cost and high ROI make it an essential product for any grower.

### Features and Benefits

- ✦ Speeds seed germination
- ✦ Increases germination consistency, which means plants are ready to harvest at the same time
- ✦ Increases seedling vigor and resistance to weather stressors
- ✦ Supplies critical endomycorrhizal fungi
- ✦ May replace graphite, talc, or other lubricants in planters

### Key Ingredients

- ✦ Microbial inoculants
- ✦ Kelp Blend
- ✦ Calcium
- ✦ Humic Acid

### Application Rates and Timing

- ✦ Up to 4 oz per 100 lbs of seed or per acre
- ✦ Can be increased to 6 oz per 100 lbs of seed for smaller seeds

## SeedFlare™

SeedFlare™ is a nutritional seed treatment that provides trace minerals directly into the seed to stimulate rapid germination and emergence. SeedFlare™ is designed to supply nutrients that are commonly missing from commercial seed.

### Features and Benefits

- ✦ Increases seedling chlorophyll content immediately after germination
- ✦ Improves root colonization of beneficial microorganisms
- ✦ Increases the number and size of reproductive buds
- ✦ Increases the size of reproductive bud-associated leaves, which can increase fruit or grain size

### Key Ingredients

- ✦ Magnesium sulfate
- ✦ Zinc sulfate
- ✦ Manganese sulfate
- ✦ Iron sulfate
- ✦ Copper sulfate



### Application Rates and Timing

Spray SeedFlare™ directly onto the seed without diluting it with water to avoid softening. If needed, a small amount of water can be added to help ensure full seed coverage. Take care not to increase the seed's moisture content to a level that could trigger pre-germination injury.

Rates:

- ✦ 2-8 quarts per ton of seed
- ✦ 1.6-6.4 ounces per 50 pounds of seed
- ✦ 1-3.75 milliliters per pound of seed



# Soil Applications

## The Regenerative Soil Primer

At Advancing Eco Agriculture, we believe that soil biology is essential to healthy crops. Establishing a high-functioning soil system is vital to successful growing.

Our Regenerative Soil Primer is the core application that inoculates the soil. It digests crop residue, reduces compaction, and makes nutrients more plant-available through mineralization, all while promoting a disease-suppressive soil environment. This is key to unlocking soil fertility.

## Applying the Soil Primer

The following products, Rejuvenate<sup>™</sup>, SeaShield<sup>™</sup>, and Spectrum<sup>™</sup>, are to be combined and applied as a single application. Of primary importance is to get the application onto crop residue and under the soil surface. The bacteria in Spectrum need food, water, shelter, and oxygen to thrive. Techniques to accomplish this are different for each unique situation. Here are some options:

- ✦ Use ample water (at least 20 gal per acre, 20:1 water to product) to soak the materials into the top 2-3 inches of soil
- ✦ Lightly incorporate with shallow tillage directly after application
- ✦ Apply just prior to a gentle soaking rain, or use sprinklers or overhead irrigation directly after application
- ✦ Apply prior to laying plastic mulch or other soil covering

## Soil Primer Application Timing

### Post Harvest/Fall

The most common timing for the Soil Primer application is after crops have been harvested. This provides the longest period of time for microbial growth, nutrient release, and residue digestion without setbacks from tillage, herbicides, or other disturbances.

If planting a fall/winter cover crop, it is ideal to apply the Soil Primer just before the last tillage pass and before seeding, regardless of the crop to follow next season, even if you have a perennial crop left to overwinter.

### Springtime

When preparing for planting in the spring, the Soil Primer provides an opportunity to jump start microbial activity in cooler soil temperatures and allow optimal root symbiosis with newly emerging seedlings. Spring applications can be made when incorporating cover crops or at the final tillage pass before planting/transplanting.

A half rate of the Soil Primer can also be applied multiple times during the season as beds are replanted with subsequent seedings or succession plantings.

### Soil Primer

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<u>Rejuvenate</u>	2 gal	6 oz
<u>SeaShield</u>	2 gal	6 oz
<u>Spectrum</u>	50 g	1/4 tsp

# Vegetable Applications



## Vegetable Applications

### Direct Seed Solution

For direct seeding operations, providing early nutrition is an important boost to the available fertility profile of the soil ecosystem to ensure rapid development at germination, a critical point of influence in the plant growth cycle. The amount of water needed for these applications is highly variable and will depend on the local conditions in your field.

For direct seeding in the field, put the following planting solution directly in the row before or after row closure. For no-till drilling, apply in-furrow.

Use at least 10:1 water to product, or as much water as needed to drench the solution around seed at the provided rates.

#### Direct Seed

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<u>MacroPak</u>	3 qt	2.25 oz
<u>Rejuvenate</u>	2 qt	1.5 oz
<u>SeaStim</u>	1 qt	.75 oz
<u>Spectrum + Myco</u>	50 g	1/4 tsp

## Vegetable Applications

### Transplant Solution

The solution below should be mixed with as much water as it takes to ensure it is evenly distributed over all the transplants in a given area. It is common to use as much as 200-300 gal of water per acre depending on soil moisture level, number of plants per acre, and how the transplanter is set up. Ideally the solution should be applied into the holes while setting plants; where that is not possible, apply as a drench at the base of each plant after transplanting.

#### Transplant

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<u>MacroPak</u>	4 qt	3 oz
<u>Rejuvenate*</u>	3 qt	2.25 oz
<u>SeaStim</u>	1 qt	.75 oz
<u>Spectrum + Myco</u>	50 g	1/4 tsp

## Vegetable Applications

### Instructions for Foliar Spraying

In a tank sprayer, backpack sprayer, or hand-held pump sprayer, mix the ingredients of the next three foliar programs at a rate of a minimum 10:1 (we prefer 20:1) water to product.

To avoid clogging, always screen or filter materials before adding to the sprayer reservoir.

Morning and evening applications are preferred. Avoid overhead watering for two hours after foliar application and spray at least two hours prior to rain.

### Vegetative Stage Foliar

From seedling stage through harvest on non-fruiting crops, spray weekly through harvest. For fruiting crops, spray weekly until flowering, then proceed to Bud Formation and Blossoming Foliar.

## Vegetable Applications

### Bud Formation and Blossoming Foliar

Use as a weekly foliar application from bud formation through early fruit set to encourage abundant

flowering, pollination, and cell division. Appropriate for cut flowers and all fruiting crops, such as tomatoes, cucumbers, and beans. This helps prevent leggy plants and promotes more compact bud spacing.

#### Bud Formation and Blossoming

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<u>SeaStim</u>	4 qt	3 oz
<u>MacroPak</u>	2 qt	1.5 oz
<u>MicroPak</u>	1 qt	.75 oz
<u>Micro 5000 Organic</u>	75 g	3/8 tsp

#### Vegetative Stage

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<u>MacroPak</u>	2 qt	1.5 oz
<u>MicroPak</u>	1 qt	.75 oz
<u>SeaStim</u>	1 qt	.75 oz
<u>Micro 5000 Organic</u>	25 g	1/8 tsp

## Vegetable Applications

### Fruit Fill Foliar

Use as a weekly foliar application from fruit set through harvest.

#### Fruit Fill

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<u>MacroPak</u>	4 qt	3 oz
<u>MicroPak</u>	1 qt	.75 oz
<u>SeaStim</u>	1 qt	.75 oz
<u>Micro 5000 Organic</u>	25 g	1/8 tsp



## Vegetable Applications

### Fertigation/Soil Drench

Fertigation is the application of nutrients through drip tape, microsprinklers, overhead irrigation systems, or even a watering can. Always thoroughly flush lines after fertigation.

In any overhead or surface application it is important to get nutrients watered into the soil without over saturating the root zone.

When using our products in a fertigation system, dilute them with enough water to allow the appropriate metering of the solution through your irrigation system.

Using an inoculant like Spectrum in a fertigation system serves to maintain optimal microbial activity and drive root growth but carries a higher risk for line clogging. Ensure your lines are well flushed.

Mix the products below with at least an equal volume of water and apply bi-weekly throughout the growing season.

#### Fertigation/Soil Drench

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<u>MacroPak</u>	3 qt	2.25 oz
<u>Rejuvenate</u>	2 qt	1.5 oz
<u>SeaStim</u>	1 qt	.75 oz
<u>Spectrum*</u>	20 g	1/8 tsp

\* Use only 5-10g of Spectrum through drip tape.



## Fruit Applications

### Fruit Applications

#### Bud Break and Blossoming Foliar

Early spring nutritional foliar applications, beginning at bud break, support all subsequent stages of leaf and fruit development. The formula below enhances blossom vigor, pollination, and cell division in early fruit development, reducing fruit quality issues and disease pressure that often initiate at bloom. Nutritional support at this stage is critical to building the plants' immune systems. Mix the products below with at least 20 gallons of water and apply weekly from bud break through petal fall.

#### Bud Break and Blossoming

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<u>SeaStim</u>	4 qt	3 oz
<u>MacroPak</u>	2 qt	1.5 oz
<u>MicroPak</u>	1 qt	.75 oz
<u>Micro 5000 Organic</u>	75 g	3/8 tsp



**Fruit Applications**

**Cell Division Weekly Foliar**

In the later stages of bloom, immediately following pollination, cell division occurs over 2-4 weeks. This is the optimal time to move calcium into developing cells, ultimately determining firmness, and quality of harvestable fruit.

Rates can be altered based on crop load—a younger, lighter crop may only need a half rate. For mature plants with a heavy blossom load, the full rate should be applied. Mix the products below with at least 20 gallons of water and apply weekly 2 or 3 times after petal fall.

**Cell Division Weekly**

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<u>MacroPak</u>	3 qt	2.25 oz
<u>SeaStim</u>	2 qt	1.5 oz
<u>HoloCal</u>	2 qt	1.5 oz
<u>MicroPak</u>	1 qt	.75 oz
<u>Micro 5000 Organic</u>	75 g	3/8 tsp

**Fruit Applications**

**Fruit Fill Weekly Foliar**

Managing nutrition at this stage influences the quantity of photosynthates transported from leaves to the fruit which can improve fruit color, storability, firmness, aroma, and flavor. Additionally, fruit that is more nutrient-dense will hang longer, providing more flexibility of harvest timing.

The number of applications is variable and depends on the number of weeks or months of the fruit fill period of each crop type. Mix the following products with at least 20 gallons of water and apply as a foliar beginning 7 days after the last Cell Division Foliar. Continue every 7-10 days until just before harvest.

**Fruit Fill Weekly**

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<u>MacroPak</u>	4 qt	3 oz
<u>SeaStim</u>	1 qt	.75 oz
<u>MicroPak</u>	1 qt	.75 oz
<u>Micro 5000 Organic</u>	25 g	1/8 tsp

## Fruit Applications

### Bud Initiation Foliar

Perennial fruit buds for next year's crop are initiated either while the fruit is still on the tree or during the post-harvest period. Late-season nutritional applications are often overlooked by growers, reducing the potential for high-quality yields the following year.

There are wide variances in bud initiation timing. Generally bush, cane, and cherries, along with early apples, initiate in mid-summer after

harvest. Stone fruits like peaches and nectarines, along with Fall harvested apples, pears, and citrus buds are initiated with fruit still on the tree.

To improve quality markers including number, size, freeze resistance, and nutrient content of the following season's buds, mix the products below with at least 20 gallons of water and apply at least twice, up to four times, between harvest and leaf drop.

#### Bud Initiation

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<a href="#">SeaStim</a>	4 qt	3 oz
<a href="#">MacroPak</a>	2 qt	1.5 oz
<a href="#">MicroPak</a>	2 qt	1.5 oz



“AEA products have completely changed the growth of my small orchard and vegetable garden. We have fruit set like I have never seen before! I am amazed by the difference that the products have made! Thank you for the advice and products.”

— Eric C.  
California

## Fruit Applications

### Fertigation/Soil Drench

Fertigation is the application of nutrients through drip tape, microsprinklers, overhead irrigation systems, or even a watering can. Always thoroughly flush lines after fertigation.

In any overhead or surface application it is important to get nutrients watered into the soil without over saturating the root zone.

When using our products in a fertigation system, dilute them with enough water to allow the appropriate metering of the solution through your irrigation system.

Using an inoculant like Spectrum in a fertigation system serves to maintain optimal microbial activity and drive root growth but carries a higher risk for line clogging. Ensure your lines are well flushed.

Mix the products below with at least an equal volume of water and apply bi-weekly throughout the growing season.

#### Fruit Applications

##### Monthly Fertigation/Soil Drench

PRODUCT	RATE PER ACRE	RATE PER 1000 FT <sup>2</sup>
<a href="#">MacroPak</a>	3 qt	2.25 oz
<a href="#">Rejuvenate</a>	2 qt	1.5 oz
<a href="#">SeaStim</a>	1 qt	.75 oz
<a href="#">Spectrum*</a>	20 g	1/8 tsp

\* Use only 5-10g of Spectrum through drip tape.



# Further Considerations

## Nitrogen Needs

These applications may not fully account for a crops nitrogen needs which are critical to a growing crop. The form of Nitrogen used is important; different sources can have a detrimental or beneficial effect on soil biology. Some organic sources of nitrogen are fish emulsion, soy protein hydrolysate, blood meal, compost, and manure/ guano. Nonorganic sources that do not compromise the soil biology are urea and ammonium sulfate which can be very effective if used in the right dose. When using AEA applications it is common to reduce nitrogen use by 25 to 30%.

## Application Rates

Application rates may be adjusted to meet the specific needs of the plants, provided they do not exceed the maximum limits specified on the product label. Adjustments may be made in the following ways

- ✦ Change the concentration of the products in the mix
- ✦ Alter the timing to more or less than weekly
- ✦ Feed plants in smaller doses more often (most effective)

## USDA National Organic Program

All products in this booklet comply with the USDA National Organic Program (NOP) rules and other international bio-organic regulations for certified organic crop production. AEA also sells non-NOP compliant products. Verify with your certifier before using.

## Customized Solutions

AEA offers a complete line of liquid mineral nutrition and biological micronutrients and additional products to improve soil health and crop performance. Consulting services are available for qualified growers.

## Ready to Get Started?

Contact our Customer Care Team at 800-495-6603 or [hello@advancingecoag.com](mailto:hello@advancingecoag.com)

# Regenerative Agriculture Podcast by John Kempf

Regenerative agriculture thought leader & AEA Founder John Kempf hosts scientists and growers, providing actionable information and scientific research relevant to crop quality, yields, water, soil biology and profitability.



Listen now!



[AdvancingEcoAg.com](https://www.advancingecoag.com)



“ I learn so much from this podcast. [...] John guides the conversations brilliantly. His guests are excellent experts. ”

— *onekanmar* (Apple Podcasts)



**Advancing Eco Agriculture**  
*Regenerative Solutions for Every Grower*

(800) 495-6603  
[hello@advancingecoag.com](mailto:hello@advancingecoag.com)

**AEA Newsletter Sign Up**  
[advancingecoag.com/newsletter](https://advancingecoag.com/newsletter)

Search “Advancing Eco Ag” to follow us.

