

Advancing
Eco Agriculture



Market Gardener Grower's Guide

Designed to support plant
nutrition and soil biology.

In Partnership with

**MARKET
GARDENER**
INSTITUTE

Growing with AEA

We've partnered with JM Fortier and the Market Gardener Institute to bring proven regenerative techniques to market gardeners and small-scale growers around the world. Having run successful ongoing joint field trials we are proud to announce a dedicated line of regenerative products specifically for market gardeners. We help market gardeners enhance the quality and marketability of their produce.

Market gardeners depend on superior flavor and color of their produce to attract customers. They must also manage pests and diseases on their farm, often while navigating organic standards.

AEA's easy-to-use regenerative products are designed to support plant nutrition and soil biology, and are a valuable tool in helping market gardeners increase profitability and crop quality while reducing or eliminating the need for pesticides and synthetic fertilizers.

Students of the Market Gardener Institute's [Masterclass](#) and [Flower Farm](#) receive a 15% discount on all AEA products!



Our Story

AEA is dedicated to revitalizing soil and plant health through a whole-systems approach that increases yields and crop performance, reduces or eliminates the need for pesticides and fertilizers, and generates immediate economic returns for farmers.

We believe regenerative agriculture is farming in harmony with nature, using concepts based on emerging scientific understanding of soil health and plant immunity. It focuses on restoring and improving the health of the soil, biodiversity, and ecosystems while also enhancing the resilience of agricultural systems. It goes beyond sustainable practices by actively working to regenerate degraded land and promote long-term viability.

We've helped thousands of growers successfully implement regenerative agricultural practices and unique crop plans on more than four million acres, but our story began in 2006, in a melon patch on an Amish farm in Northeast Ohio.



MGI Trials

Advancing Eco Agriculture conducted a plant health and yield trial across three farms to evaluate the impact of our nutritional programs. Results included:

- **Resilience:** Marked yield and disease resistance gains despite a late start and non-optimal conditions.
- **Performance:** Significant improvements even when treatments began during fruit fill or late harvest windows.
- **Quality:** Higher percentage of “marketable” fruit across all farms, reducing waste and increasing value.
- **Health:** Successfully optimized sap nutrient levels, leading to extended plant productivity.

Trial 1: Tenacious Agrarians

- **Tomato Yield:** Produced 23.5 lb more total fruit than the control group.
- **Marketable Win:** 63% improvement in quality, yielding 28.5 lb more sellable fruit.
- **Disease Resistance:** Achieved 193.67% more marketable yield during peak late-season pressure (9/23–10/16).
- **Kale Growth:** Final biomass increased by 47% (28.75 lb vs. 19.5 lb) despite very late applications.

Trial 2: Mighty Gnome Market Garden

- **Kale Success:** Achieved a 68.4% increase in total yield, producing 123.75 lb compared to 73.5 lb.
- **Tomato Yield:** Increased production by 30.1% (+7.8 lb), despite a very late planting.
- **Vitality:** Treatment drove a marked increase in macronutrients and higher sugar levels.
- **Visuals:** Observable increase in plant size and robustness compared to control beds.

Trial 3: Fleischer Family Farm

- **Tomato Yield:** Delivered a 24.1% higher yield.
- **Sugar Levels:** Treatment reached optimum sugar levels in sap analysis.
- **Longevity:** Plants maintained heavier fruit loads and darker green foliage later into October.
- **Nutrient Profile:** AEA applications consistently reflected in higher macro and micro nutrient levels.

Our market gardener line brings professional-grade efficacy into a functional, easy-to-use system designed to deliver consistent quality and yield with every application.

BioCoat Gold™

Seed Germination Catalyst

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.



“As a farmer and gardener, I will never put a seed in the ground again without BioCoat Gold. No product shows a major effect 100% of the time but this is the closest of anything I have ever used.”

- Cole Neese
Indiana



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 & Instructions

- ✦ Use 1 gram per pound of seed
- ✦ Add to dry seed and shake or mix to coat seed evenly



Revenant Charge™

Bring Your Soil Back to Life

Revenant Charge™ is a low-cost, high-impact boost for soil biology. We designed it specifically as a cost-effective solution that awakens existing soil biology by providing food and a favorable environment.

Data from our field trials shows that Revenant Charge™ unlocks banked phosphorus and other tied-up nutrients, directly cutting your input costs and building long-term soil fertility. Revenant Charge™ is not just another expense; it's the key to accessing an existing, untapped asset on your farm. By enhancing the inherent biological function of your soil.

Using Revenant Charge™

Apply Revenant Charge™ via soil drench, irrigation, fertigation, or direct soil spray. For optimal coverage, sprinkler application is recommended. When using a boom sprayer, ensure sufficient water dilution to achieve uniform coverage of the target area.

- ✦ **Recommended application rate:**
3-6oz per 1,000 ft²
100ml-200ml per 100 m²
- ✦ It's a true liquid
- ✦ It runs seamlessly through a 100 mesh screen
- ✦ It's a single, standalone product but can also be used in combination with support products such as MacroPak™ as needed.

Revenant Charge™ Application Timing

Post Harvest/Fall

The most common timing for 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 Revenant Charge™ 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, Revenant Charge™ 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 Revenant Charge™ can also be applied multiple times during the season as beds are replanted with subsequent seedings or succession plantings.

Pinion™

For Home and Garden Ready to Use

Controls powdery mildew on house, garden and greenhouse plants

Effective, easy to apply, and safe when used as directed, [Pinion™ for Home and Garden](#) creates an inhospitable environment for disease-causing organisms, helping crops resist new infections and suppressing existing foliar disease pressure for fungal infections.

Pinion™ for Home and Garden is pre-diluted and ready to use.

- ✦ Broad-spectrum efficacy against powdery mildew.
- ✦ Flexible application: Can be used both at the onset of pressure and after symptoms appear
- ✦ Fast Results: Helps stop diseases like powdery mildew in their tracks
- ✦ Minimal reapplication—often just one spray at the start of pressure season



Application Instructions

[Pinion™ for Home and Garden](#) is best used as a preventative treatment application one to two weeks before disease pressure occurs, or as a treatment once the presence of disease is observed.

Spray until the leaf surface is soaked.

It can be combined with many other nutrient applications. A jar test should be conducted when mixing Pinion for Home and Garden with any other product. Its performance may be compromised when mixed with sulfur applications or other fertilizers which have an oxidizing effect.

Celery Trial: *In this greenhouse trial, celery treated with Pinion™ Home and Garden showed significantly greater resilience against blight compared to the control group, despite both receiving the same nutritional program. While the control suffered from large, papery tan lesions and tissue death, the Pinion-treated plants maintained superior foliage health and vigorous growth.*

Untreated Control

MacroPak™ & MicroPak™

Vegetable Applications

MacroPak™

MacroPak™ is intended to provide the macronutrients needed to build a strong plant that can support large yields, strong photosynthesis, and immune system development. It contains NPK at a rate of 2-2-2.

- ✦ Provides macronutrients needed for nutritional integrity
- ✦ Increases a plant's capacity for optimal fruit and seed set
- ✦ Improves resistance to abiotic stressors
- ✦ Encourages larger, stronger roots
- ✦ Improves the plant's immune response
- ✦ NOP Compliant

MicroPak™

MicroPak™ contains a blend of trace minerals that are critical to growing healthy plants. Trace minerals encourage the development of larger and stronger root systems, increase nitrogen fixation and nitrogen use efficiency, enhance sugar transportation, and greatly improve vigor and quality in the buds, blossoms and fruit.

- ✦ Encourages larger, stronger roots
- ✦ Encourages pest and pathogen resistance
- ✦ Improves nutrient uptake, especially calcium
- ✦ NOP Compliant

Instructions for Foliar Spraying

For tank, backpack, or hand-held sprayers, use a 50:1 water-to-product ratio to prevent marking produce; adjust this dilution based on your experience. As marketable fruit develops, many growers transition these applications from foliar to soil applications.

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

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

For vegetables, we recommend weekly or bi-weekly applications. At a minimum, prioritize treatment at these Critical Points of Influence to ensure peak crop performance:

- ✦ Transplanting: Establish soil biology and reduce shock.
- ✦ Seedling Stage: Boost vigor and rapid early development.
- ✦ Bud/Blossom: Drive flowering, pollination, and cell division.
- ✦ Fruit Set to Harvest: Transport photosynthates for peak fruit density.

PRODUCT	RATE PER 1000 FT ²	RATE PER 100 M ²
MacroPak	6 Tbsp	90 mL
MicroPak	3 Tbsp	45 mL



Fruit Applications

Instructions for Foliar Spraying

For tank, backpack, or hand-held sprayers, use a 50:1 water-to-product ratio to prevent marking produce; adjust this dilution based on your experience. As marketable fruit develops, many growers transition these applications from foliar to soil applications.

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

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

Advancing Eco Agriculture's approach to fruit production centers on precise nutrition management and robust soil biology to achieve high yields and superior fruit quality while significantly reducing pesticide reliance. AEA emphasizes the strategic balance and timing of macro and micronutrient applications integrated with consistent perennial protocols.

This regenerative method targets specific "Critical Points of Influence," to overcome persistent challenges like biennial bearing, poor storability, and common diseases. By combining foliar and soil-applied biology, our products can improve uniformity, firmness, and flavor across a wide range of fruit types.

For fruit and berries, we recommend weekly applications. At a minimum, prioritize treatment at these Critical Points of Influence to ensure peak crop performance:

- ✦ Bud Break: Supports initial leaf and fruit development.
- ✦ Bloom & Petal Fall: Vital for blossom vigor, pollination, and early cell division.
- ✦ Cell Division: Critical 2–3 week window post-pollination that determines fruit firmness
- ✦ Fruit Fill: Drives photosynthate transport for better color, flavor, and storability.
- ✦ Bud Optimization (Post-Harvest): Boosts size, nutrient content, and freeze resistance of next year's buds.

PRODUCT	RATE PER 1000 FT ²	RATE PER 100 M ²
MacroPak	6 Tbsp	90 mL
MicroPak	3 Tbsp	45 mL

Program Modifications

The following additions can be made to the standard foliar program based on weather events and conditions observed in the field.

Pest or Disease Pressure

If pest or disease pressure is present, reduce nitrogen inputs and add the following to foliars:

- ✦ **SeaStim™:**
3-6 Tbsp per 1,000 ft²
100-200 mL per 100 m²
- ✦ **PhotoMag™:**
3-6 Tbsp per 1,000 ft²
100-200 mL per 100 m²
- ✦ **Rejuvenate™:**
1.5 Tbsp per 1,000 ft²
50 mL per 100 m²

Low Calcium

If plants are showing symptoms of calcium deficiency, add the following to foliars:

- ✦ **HoloCal™:**
3-6 Tbsp per 1,000 ft²
100-200 mL per 100 m²w

Freeze Protection

Apply within 48 hours prior to freeze.

- ✦ **SeaCrop™:**
6 Tbsp per 1,000 ft²
100 mL per 100 m²
- ✦ **SeaStim™:**
6 Tbsp per 1,000 ft²
100 mL per 100 m²
- ✦ **Holo-K™:**
6 Tbsp per 1,000 ft²
100 mL per 100 m²

Low Phosphorus

If plants are showing symptoms of phosphorus deficiency, add the following to foliars:

- ✦ **HoloPhos™:**
3-6 Tbsp per 1,000 ft²
100-200 mL per 100 m²

Heat Stress Protection

Apply within 48 hours prior to heat.

- ✦ **PhotoMag™:**
6 Tbsp per 1,000 ft²
100 mL per 100 m²
- ✦ **SeaStim™:**
6 Tbsp per 1,000 ft²
100 mL per 100 m²
- ✦ **Rejuvenate™:**
2 Tbsp per 1,000 ft²
50 mL per 100 m²

Low Potassium

If plants are showing symptoms of potassium deficiency, add the following to foliars:

- ✦ **Holo-K™:**
3-6 Tbsp per 1,000 ft²
100-200 mL per 100 m²w

Hail Recovery Foliar

Apply within 24 hours of hail (48 hours maximum).

- ✦ **SeaStim™:**
9 Tbsp per 1,000 ft²
150 mL per 100 m²
- ✦ **Rejuvenate™:**
6 Tbsp per 1,000 ft²
100 mL per 100 m²
- ✦ **PhotoMag™:**
5 Tbsp per 1,000 ft²
100 mL per 100 m²
- ✦ **SeaCrop™:**
3 Tbsp per 1,000 ft²
50 mL per 100 m²



Further Considerations

Nitrogen Needs

Effective nitrogen management for market gardeners goes beyond simply applying pelletized chicken manure. While many growers rely on manure for base fertility, an over-reliance on this single source often leads to excessive nitrate levels that plants cannot properly convert into proteins due to a lack of supporting micronutrients.

This nitrogen bottleneck is a primary driver of increased pest and disease pressure. To optimize soil biology, consider diverse organic sources like fish emulsion, soy protein hydrolysate, or blood meal, alongside biology-safe non-organic options like urea or ammonium sulfate used in precise doses. By integrating these targeted applications, growers can typically reduce their overall nitrogen usage by 25% to 30% while achieving superior crop resilience.

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)

Additional Products

AEA offers a full suite of solutions including [SeaShield™](#) for supplemental nitrogen and [SeaStim™](#) to bolster plant resilience against abiotic stress. For targeted soil balancing following your soil tests, incorporate [SeaCrop™](#) to provide essential mineral support. Explore our complete [catalog](#) for your specific goals.

USDA NOP

BioCoat Gold™, MacroPak™, and MicroPak™ comply with the USDA National Organic Program (NOP) rules and other international bio-organic regulations for certified organic crop production. We are currently in the process of obtaining NOP approval for Pinion™ and Revenant Charge™.

FieldLark AI

Ever wish you had a master agronomist on speed dial? Now you can.

[FieldLark](#) is built on Advancing Eco Agriculture's proprietary knowledge and shaped by decades of experience from AEA consultants and regenerative farming leaders, this AI-powered system offers practical, biologically sound recommendations to support plant health, improve resilience, and reduce reliance on synthetic inputs.

Testing Recommendations

Understanding your baseline is one of the most valuable investments a market gardener can make. We recommend three key tests to inform and refine your program:

Soil Test

Establishes your foundational mineral balance, pH, and nutrient availability before planting.

Water Test

Identifies hardness or salts that could block nutrient uptake or reduce the effectiveness of foliar sprays.

Sap Analysis

For growers running larger plantings of a single crop, sap analysis offers a real-time window into the nutrient balance of the crop itself, allowing for precise, timely nutritional adjustments.

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://advancingecoag.com)



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

— *onekanmar* (Apple Podcasts)



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