



HORT AMERICAS

HYDROPONIC FERTILIZER

9-7-37

Hort Americas is an innovative leader in North America's controlled environment agriculture industry (CEA). Hort Americas strives to innovate agriculture via premium technical support, professional salesmanship, unmatched customer service and outstanding products to our customers in the United States, Canada, Mexico and the Caribbean. In our efforts to fuel progress in CEA we are proud to release Hort Americas Hydroponic Fertilizer.

Hort Americas has developed this unique fertilizer in cooperation with CEA hydroponic specialists, academicians and researchers to meet the nutritional needs of crops produced by hydroponic leafy green growers.

DIRECTIONS FOR USE

These are general guidelines that need to be adjusted to your hydroponic system, environmental conditions, and to the quality of your source water.

HYDROPONICS: Have your source water tested by a professional water analysis laboratory to determine its nutrients, pH, EC and total alkalinity. Calcium nitrate, potassium nitrate, magnesium sulfate, chelated iron, or any other plant essential elements can be added as determined by plant response, tissue analysis, or nutrient solution analysis.

SUGGESTED RATES:

0.271 to 0.455 lbs/100 gallons - 1.23 to 2.06 grams/1 gallon (3.785 L)
Add to the nutrient solution 3.58 grams/gallon of calcium nitrate and 1.67 grams/gallon of magnesium sulfate.

HORT AMERICAS SUGGESTED LETTUCE CROPPING STAGES:

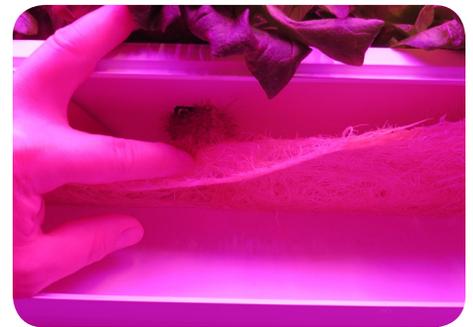
STAGE 1 - SEEDING AND GERMINATION. Sow seed in Hort Americas Closed Bottom Organic Plugs, Grodan AX cubes (NFT), Grodan AO cubes (raft), or horticulture foam cubes. Start with low light levels and a nutrient solution with an EC of 0.5 to 0.6 mS/cm. Increase to appropriate light levels and continue to grow in a nutrient solution with an EC 0.5 to 0.6 mS/cm. Gradually increase the nutrient solution EC to 1.0 to 1.2 mS/cm. Alternatively, it may be more convenient just to use the full rate from the start.

STAGE 2 - NURSERY/PROPAGATION. Transplant to nursery board (raft) or nursery trough (NFT). Grow with appropriate light levels and a nutrient solution with EC levels of 1.8 to 2.4 mS/cm in winter and 1.4 to 1.6 mS/cm in summer to assist rapid uptake of water and to prevent tip burn.

STAGE 3 - FINISHING/MATURATION. Transplant to production (finishing) board or channel. Grow in the production system with appropriate light levels and nutrient solution EC levels at 1.8 to 2.4 mS/cm in winter and 1.4 to 1.6 mS/cm in summer to assist rapid uptake of water and to prevent tip burn.

GENERAL LETTUCE PRODUCTION GUIDELINES

Maintain a nutrient solution pH between 5.4 and 5.8 and an EC level of 1.5 mS/cm once the cotyledons have fully expanded.



SUGGESTED BASIL CROPPING STAGES

HYDROPONICS: Have your source water tested by a professional water analysis laboratory to determine its nutrients, pH, EC and total alkalinity. Calcium nitrate, potassium nitrate, magnesium sulfate, chelated iron, or any other plant essential elements can be added as determined by plant response, tissue analysis, or nutrient solution analysis.

SUGGESTED RATES:

0.271 to 0.455 lbs/100 gallons - 1.23 to 2.06 grams/gallon (3.785 L). Add to the nutrient solution 3.58 grams/gallons of calcium nitrate and 1.67 grams/gallon of magnesium sulfate.

STAGE 1 - SEEDING AND GERMINATION. Sow 5 to 12 seeds in each cube in saturated Hort Americas Closed Bottom Organic Plugs, Grodan AX cubes (NFT), Grodan AO cubes (raft) or horticulture foam cubes. Basil seeds germinate in 4 to 7 days in the dark¹ at 75oF to 85oF (24oF to 27oF). As soon as the seedling leaves have expanded, use a dilute nutrient solution (EC of 0.3 to 0.5 mS/cm) with a pH of 5.8 to 6.2.

STAGE 2 - PROPAGATION. Once the seedlings are larger, grow in appropriate light and increase the nutrient solution gradually to 1.0 mS/cm with a pH of 5.8 to 6.2.

STAGE 3 - NURSERY. Transplant to nursery board (raft) or nursery trough (NFT) once they have developed the first pair of true leaves. The plants should be 2.5-3 inches tall with at least three sets of true leaves. Be careful as to not damage the delicate stems. Grow for 8 to 10 days with high light levels and EC levels of 1.0 to 1.4 mS/cm with a pH of 5.8 to 6.2.

STAGE 4 - PRODUCTION SYSTEM. Continue to grow using appropriate light levels and EC levels of 1.0 to 1.4 ms/cm with a pH of 5.8 to 6.2. Harvest when basil plants are 6 to 8 inches tall.

GENERAL BASIL PRODUCTION GUIDELINES

Maintain a nutrient solution pH between 5.8 and 6.2 with an EC of 1.0 to 1.4 mS/cm once the cotyledons have fully expanded. Start off with a lower EC (0.3 to 0.5 mS/cm) and work up to higher concentrations, usually weekly until an EC of 1.0 to 1.4 mS/cm is reached. Temperatures of 75°F to 86°F (24°C to 30°C) during the day and 61°F to 68°F (16°C to 20°C) during the night combined with a 16-hour day length produce the highest growth rates and yields per harvest.

MICROGREENS CULTURE

SUGGESTED RATES:

1.1 oz to 1.82 oz/100 gallons - 1.23 to 2.06 grams per 4 gallons. Add to the nutrient solution 3.58 grams of calcium nitrate per 4 gallons nutrient solution and 1.67 grams magnesium sulfate per 4 gallons.

MICROGREENS CULTURE GUIDELINES

Since there are many different types of plants used for microgreens, you will need to follow the culture notes for that particular plant. Plant seeds together that have the same germination times. Grow in shallow 10 x 20 trays, 20-row flats, or container of your choice. Saturate substrate with the nutrient solution. Broadcast seeds thickly approximately 1/4 to 1/2 inches apart on a saturated grow mat or substrate. Adjust temperature to recommended optimum seed germination range. Water with a mister to avoid dislodging seeds. Do not let substrate dry out. Water daily from beneath or as needed with approximately 300 ml of nutrient solution per day. Harvest when the crop reaches desired product size.

GUARANTEED ANALYSIS

Total Nitrogen (N).....	9%
9% Nitrate Nitrogen	
Available Phosphate (P ₂ O ₅).....	7%
Soluble Potash (K ₂ O).....	37%
Boron (B).....	0.09%
Copper (Cu).....	0.05%
0.05% Chelated Copper	
Iron (Fe).....	0.50%
0.50% Chelated Iron	
Manganese (Mn).....	0.19%
0.19% Chelated Manganese	
Molybdenum (Mo).....	0.01%
Zinc (Zn).....	0.19%
0.19% Chelated Zinc	

Derived from: Potassium nitrate, Monopotassium phosphate, Sodium borate, Copper EDTA, Iron DTPA, Manganese EDTA, Sodium Molybdate, Zinc EDTA

ALSO CONTAINS NON-PLANT FOOD INGREDIENTS:

7.0%.....Copoly-[(3 carboxypropionamide) (2 carboxymethylacetamide)]

CAUTION: The application of fertilizing materials containing Molybdenum (Mo) may result in forage crops containing levels of Molybdenum (Mo) which are toxic to ruminant animals.

WARNING: Some crops may be injured by application of boron.

Information regarding the contents and levels of metals in this product is available at:

www.hortamericas.com/grower-resources

