



APPLICATION GUIDELINES

The following application guidelines are offered as a tool for anyone making application recommendations. Many factors are considered when making application recommendations including:

- Soil nutrient levels
- Soil type
- Percentage of organic matter
- Crop to be grown
- Stage of plant growth
- Cropping history
- Environmental conditions

The application timing and rates may be changed to fit a particular situation that is impacted by one or more of the above mentioned factors.

In organic operations, it is recommended that all application rates be increased 100 percent of traditional applications for conventionally grown crops (conventional rate of 1 gal/acre will increase to 2 gal/acre). This increase is recommended because the build-up of residual soil nutrients in organic fields is typically less than that found in conventionally fertilized fields. Additionally, organic fertilizer products tend to have a slow release of nutrients compared to that of chemical fertilizers. Number and frequency of applications may also have to be increased for the same reasons.

We do recommend consulting a current soil report when making application decisions. Additionally, as a general rule, we recommend up to a 25% to 50% reduction of the normal N-P-K rate.

NOTICE - FOR OPTIMAL RESULTS

- The standard application rate is 1 gal/acre diluted at a ratio of 1:32 to 1:20 (4-6 oz/gal)
- If already using N-P-K products: It is recommended that N-P-K application rates be reduced up to 50 percent when using products containing SumaGrow®
- If Soil Organic Matter (OM) is low (i.e. <1.5 or heavy sand, increase the initial application rate by 0.5 gallon for all applications.
- Avoid extreme temperatures. Store at 40°F – 80°F.

- If foliar application of SumaGrow® is recommended, we recommend diluting at a ratio of 1:118 to 1:64 (1–2 oz./gal.)
- The entire spray tank and system should be rinsed and flushed thoroughly before and after the application of SumaGrow®.
- Do not apply through a piston pump.

CO-APPLICATION

- Products containing SumaGrow® can be co-applied with your irrigation water through a metered irrigation system.
- Product can also be co-applied with some liquid fertilizers and herbicides. A jar compatibility test is always recommended before application is made.
- DO NOT CO-APPLY SumaGrow® with fungicides or fumigants.

AGITATION

- The product should be gently agitated prior to application. In smaller containers, simply shake the container prior to loading into sprayer.
- With bulk carrels and totes, agitate prior to transferring to sprayer (can use air wand or paddle agitator).
- If product has been stored for a period of time, agitate the product and pour through 50 mesh screen. If there is no clogging of the screen, the product will pass through most spray systems with no problems.

Note: Loosen caps on containers upon receipt of product, and leave cap loose until product is applied.

Area	Weight and Volume			
1 hectare = 2.5 acres	1 ounce = 28 grams	1 pound = 0.45 kilograms	1 fluid ounce = 30 milliliters	1 gallon = 3.8 liters
1 acre = 0.4 hectares	1 gram = 0.035 ounces	1 kilogram = 2.2 pounds	1 milliliter = 0.03 fluid ounces	1 liter = 0.26 gallons

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CEREALS AND GRASSES

CEREALS

1. Apply 1 gal/acre at planting
2. Apply 0.5 gal/acre 3–4 weeks after crop emergence

RICE

SPROUTED SEEDS

1. Apply 1 gal/acre at 15-30 days
2. Apply 0.5 gal/acre during pre-flowering stage

TRANSPLANTS

1. Dip the roots in a 6 oz. per gallon solution of product containing SumaGrow®
2. Apply 1 gal/acre after 15-30 days
3. Apply 0.5 gal/acre during pre-flowering stage

SUGARCANE

NEW SETS

1. Apply 1 gal/acre on sets at planting
2. Apply 0.5 gal/acre 3-4 weeks after first application

RATOON

1. Apply 1 gal/acre at emergence
2. Apply 0.5 gal/acre 3-4 weeks after first application

LAWN AND TURF

TURF FARMS:

1. Apply 1 gal/acre at spring green-up
2. Apply 0.5 gal/acre up to two more times during the growing season as needed

ATHLETIC FIELDS:

1. Apply 6 oz. per 1000 sq/ft. at spring green-up
2. Apply 4 oz. per 1000 sq/ft. two more times during the growing season

GOLF COURSES:

1. Apply 2 gal/acre (or 6 oz. per 1,000 sq/ft) for first application. This application should be as close to spring green-up as possible for greens and fairways
2. Fairways: Apply 4 oz. per 1,000 sq/ft every other month on fairways during the growing season as needed
3. Greens: Apply 4 oz. per 1,000 sq/ft monthly during the growing season as needed

HOME LAWN:

1. Apply 4 oz. per 1,000 sq. ft. spring green-up or first treatment
2. Apply 4 oz. per 1,000 sq. ft. every 4–6 weeks during growing season as needed

Dilutions rates are generally recommended at 1:20 or 1:32 (4-6 oz./gallon). SumaGrow™ products can be diluted further with more frequent applications

VEGETABLES AND MELONS

LEAFY OR STEM VEGETABLES:

1. Transplants – Dip roots using 6 oz. SumaGrow® per gallon of water. Use remaining product to water the transplants.
2. Apply 1 gal/acre after planting/sowing
3. Apply 0.5 gal/acre 3–4 weeks later

FRUIT-BEARING VEGETABLES:

1. Transplants – Dip roots using 6 oz. SumaGrow® per gallon of water. Use the remaining product to water the transplants.
2. Apply 1 gal/acre after planting/sowing
3. Apply 0.5 gal/acre 3–4 weeks later

ROOT, BULB OR TUBEROUS VEGETABLES:

1. Apply 1 gal/acre at planting
2. Apply 0.5 gal/acre 3–4 weeks later

ONIONS*

1. Apply 1 gal/acre in furrow or directly over the row at planting
2. Apply 0.5 gal/acre as a sidedress when the tops begin active growth in late winter

BASIL

1. Apply 1 gal/acre at planting or seeding
2. Apply 0.5 gal/acre 3–4 weeks later as needed

HOME VEGETABLE GARDEN:

1. To transplant: Dip roots in 6 oz SumaGrow® per gallon of water. Apply every 2-3 weeks to soil around plants using 3 oz. per gallon of water.
2. Seeded Crops: Apply to row at planting using 6 oz SumaGrow per gallon of water per 1,000 sq. ft. Apply every 2-3 weeks as needed using 3 oz per gallon of water.

FRUIT AND NUTS

TROPICAL, SUBTROPICAL, AND CITRUS FRUITS:

YOUNG PLANTS

1. During the first two years, mix 1.5 gallons of SumaGrow® at a 1:20 or 1:32 dilution ratio to apply per acre across the growing season

MATURE PLANTS

1. First application 1 gal/acre immediately after harvest.
2. Apply 0.5 gal/acre each year split into three applications:
3. Subsequent applications set 2-3 months apart

PINEAPPLE*

1. Apply 1 gal/acre at planting
2. Apply 0.5 gal/acre 3 weeks later

BANANA*:

1. Apply 1 gal/acre at the beginning of the growing season
2. Apply 1 gal/acre split application 2-3 months apart

GRAPES:

1. Apply 1.5 gal/acre each year in 3 split applications (early growth, flowering, fruit set).

BERRIES:

1. Apply 1 gal/acre at early bud break
2. Apply 0.5 gal/acre at 3-4 weeks after 1st application

STRAWBERRIES*:

1. Apply 1 gal/acre at planting
2. Apply 0.5 gal/acre at 3-4 weeks after 1st application

POME FRUITS AND STONE FRUITS:

1. Apply 1 gallon/acre at planting.
2. After establishment: Apply 2 gal/acre each year in 3 split applications (1 gal/acre at bud break, .5 gal/acre at bloom set, .5 gal/acre at fruit set)

OILSEED CROPS

SOYBEANS:

1. Apply 1 gal/acre at planting
2. Apply 0.5 gal/acre 3-4 weeks after crop emergence

PEANUTS:

1. Apply 1 gal/acre at planting
2. Apply 0.5 gal/acre at “pegging”

OTHER TEMPORARY OILSEED CROPS:

1. Apply 0.5 gal/acre at planting
2. Apply 0.5 gal/acre 3-4 weeks after crop emergence

DILUTION FOR TREE ROOT DIP AND PLANTING:

1. Remove the tree from its container. A root dip in SumaGrow® before planting using a mixture of 6 oz. SumaGrow per gallon of water is recommended.
2. Apply 1.5 gallons in 2 split applications. First application 1 gallon/acre at 15 days after planting followed by 2nd application at 3-4 weeks later.

OIL PALM*, COCONUTS, OTHER OLEAGINOUS FRUITS:

NURSERY STAGE:

1. Mix 6 oz of SumaGrow® in 1 gallon of water and apply in a dip solution to transplants

1-3 YEARS OF GROWTH:

1. Apply 1.5 gal/acre in split applications of 0.5 gallon at 4 month intervals every year

MATURE PLANTS (3+):

1. Apply 1 gal/acre during vegetative growth phase

Time applications with onset of foliage and bud formation.

ROOT/TUBER CROPS

ROOT/TUBER CROPS:

1. Transplants – Dip roots/tuber using 6 oz SumaGrow® per gallon of water
2. Apply 1 gal/acre at planting
3. Apply 0.5 gal/acre 3-4 weeks after planting

LEGUMINOUS CROPS

LEGUMINOUS CROPS:

1. Apply 1 gal/acre at planting
2. Apply 0.5 gal/acre 3-4 weeks after planting

SPICE CROPS

COFFEE*:

1. Apply 2 gal/acre per year across the growing season

TEA*:

1. Apply 2 gal/acre per year split across the growing season

BLACK PEPPER:

1. Dilute 1 gallon of SumaGrow® in 32 gallons of water and apply 16 oz per plant to transplant hole
2. Apply 0.5 gallon prior to flowering

OTHER CROPS

TOBACCO:

1. Dip transplants in a solution of 6 oz. SumaGrow® to 1 gallon of water
2. Apply 0.5 gal/acre for 3 applications 3-4 weeks apart

TEMPORARY/PERMANENT GRASS CROPS (PASTURE & HAY):

ESTABLISHMENT:

1. Apply 1 gal/acre at seeding/sprigging
2. Apply 0.5 gal/acre 4 weeks after initial application

MAINTENANCE (PASTURES):

1. Apply 1 gal/acre at green-up
2. Apply 0.5 gal/acre 4-6 weeks later as needed

HAY FIELDS:

1. Apply 1 gal/acre at green-up
2. Apply 0.5 gal/acre after cutting of hay as needed

TEMPORARY FIBER CROPS:

1. Apply 1 gal/acre at planting
2. Apply 0.5 gal/acre 3-4 weeks after crop emergence

TEMPORARY FLOWER CROPS (INDOOR/OUTDOOR POTTED PLANTS):

1. Apply 1 cup of SumaGrow® mixture (6 oz/ per gallon of water) once per month

PERMANENT FLOWER CROPS:

DILUTION FOR ROOT DIP AND PLANTING:

1. Add 6 oz to 1 gallon of water to dip roots before planting/transplanting
2. add any remaining solution around plants

FOR ESTABLISHED PLANTS:

1. Mix 8 oz in 2 gallons of water and apply to 1,000 sq/ft First applications should be made at the beginning of the growing season
2. Apply a 2nd application before flowering using the same application procedure as the 1st

OTHER PERMANENT CROPS (PINE/CHRISTMAS TREES):

1. Mix 6 oz of SumaGrow® per gallon of water – the diluted solution can then be used for seedling root dips
2. The leftover solution can be added at the time of planting
3. Mix 6 oz of SumaGrow® per gallon of water and apply per 1,000 square feet

NURSERY CROPS:

1. If injection is possible, apply 32 oz per acre or 3/4 oz. per 1,000 sq ft every 3 weeks
2. Or apply as a “Sprench”, a heavy spray to ground surface and foliage at approximately 32 oz per acre or .75 oz per 1,000 sq ft
3. If plants have reached optimum size in the pots and are showing moisture stress (wilting, drooping, leaf graying, yellowing, & abscission of lower foliage), the appropriate formulation can be reapplied at the initial rate to help reduce moisture stress

WATERING:

1. With proper management, watering may be reduced 10-50% depending on the crop (genus, species, size of plant, etc.), time of year, daily conditions, and how closely you have managed your water in the past

Nutrients can be reduced while using SumaGrow® Inside products. The nutritional recommendations is the individual Grower's responsibility, not that of Bio Soil Enhancers, Inc.

HYDROPONICS:

INITIAL APPLICATION:

1. Apply 1-2 gal/acre (3-6 oz per 1,000 sq ft)

RATE PER PLANT:

1. Divide the number of plants stocked per 1,000 sq ft into rate per 1,000 sq ft
200 plants per 1,000 sq ft
3 oz per 1,000 sq ft
 $3/200 = 0.015$ oz or 0.5 ml per plant

SUBSEQUENT APPLICATIONS:

1. Apply 10 oz. per acre or $1/4$ oz per 1,000 sq ft once a week during growing season