
LIMA
GROLEAF
FOLIAR
NUTRITION
FOLIAR FERTILIZER
FOLIAR FERTILIZER

Foliar nutrition

Foliar nutrition is an effective method to feed the plant as a supplement to the soil nutrition. Especially when the uptake of nutrients from the soil is compromised either to prevent or correct any nutrient deficiency.

We have created the Groleaf range, fully water soluble plant nutrition products. This range contains 10 times more concentration of trace elements in an balanced NPK formula, as well as our optional QPS45 complex, turning this product into a trace elements product with the macronutrients N,P and K added. This high concentration of chelated micronutrients allows us to combine crop nutrition and correction of micronutrient deficiencies all in one go. As such, Groleaf formulas become unique multipurpose foliar nutrition products. In addition, due to an innovative humic/fulvic complex, our products provide valuable inputs, such as a biostimulant effect in plants.

Groleaf formulations are specifically designed for foliar application guaranteeing an optimal and prompt nutrient uptake through leaves. Foliar uptake of nutrients is more efficient and faster than root uptake as shown in table. There are several formulations to be applied at different crop stages.

	Foliar nutrient rate kg	Soil applied rate equivalent kg
Nitrogen	0.45	4.5-6.8
Phosphorus	0.45	9
Potassium	0.45	12.2
Manganese	0.45	9.0 - 11
Sulfur	0.45	2. - 3.
Iron	0.45	11. - 45
Zinc	0.45	45.4
Magnesium	0.45	13
Boron	0.45	13.6
Copper	0.45	16 - 17
Calcium	0.45	16 - 18

Foliar vs Soil nutrient equivalence.

* *Both foliar and soil applied materials are in elemental (sulfate) form.*
Source: Information published by A&L Laboratories. Modesto, California.

Groleaf range provides multiple benefits:

-Fully water soluble products designed for foliar nutrition. No residue.

-Formulations fortified with the QPS45 that acts as a biostimulant

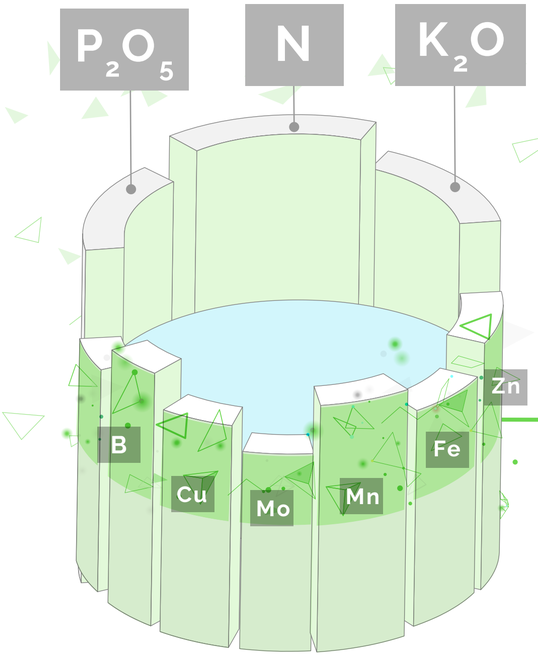
-High concentration of chelated micronutrients to effectively. prevent multiple deficiencies.

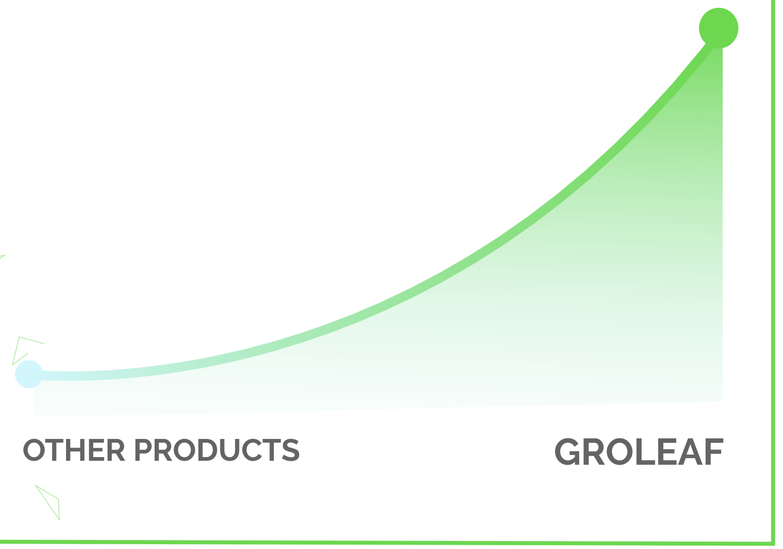
-Safe formulas with low biuret content and free from chlorine.

-Stimulate the root activity and uptake of nutrients from the soil.

-Groleaf exists in different formulations to meet crop specific nutritional requirements.

x10
MICRONUTRIENTS CONCENTRATION





GROLEAF 20-20-20 + TE + QPS45

GROLEAF 20-20-20 + TE + QPS45 is recommended for use as a foliar supplement during vegetative growth, fruit development as well as for post-harvest applications for fruit trees.
The foliar dosage rate varies from 0.5 – 5 kg/ha with a maximum concentration of 0.5% (or 500 g/100 L water). Maximum dosage not to be exceeded.

GUARANTEED CONTENT	%W/W
Nitrogen (N) Nitrate nitrogen ($N\text{-}NO_3$) Ureic nitrogen ($N\text{-}NH_2$)	20.0 0.3 19.7
Phosphorous Pentoxide (P_2O_5)	20.0
Potassium Oxide (K_2O)	20.0
Boron (B), water soluble	0.20
Copper (Cu), EDTA-chelated	0.05
Iron (Fe), EDTA-chelated	0.40
Manganese (Mn), EDTA-chelated	0.20
Molybdenum (Mo), water soluble	0.005
Zinc (Zn), EDTA-chelated	0.4
QPS45 complex	2.0

RATES OF USE AND APPLICATION TIMING

CEREALS

Apply 2 - 4 kg/ha during the accelerated vegetative growth in spring or after winter dormancy.

POTATO

Apply 5 kg/ha at the beginning of tuber growth and filling. Repeat 10 days later.

ONION, LETTUCE

Apply 4 kg/ha at the accelerated vegetative growth. Repeat throughout the cycle.

GREENHOUSE VEGETABLES

tomato, cucumber, eggplant

Apply 0.5 - 1 kg/ha during the vegetative growth. Repeat the same rate during the fruit growth stage.

OPEN FIELD VEGETABLES

tomato, cucumber, melon, water melon

Apply 2 - 4 kg/ha during the accelerated vegetative growth. Repeat the same rate during the fruit growth stage.

SOFT FRUITS

strawberries, raspberries, blackberries

Apply 2 - 4 kg/ha at the accelerated vegetative growth; repeat with the same dose on green fruits and during the bulking stage.

FRUIT TREES:

apples, pears, cherries, peaches, grapes, olives

Apply 3 - 5 kg/ha after fruit setting. Repeat twice at the rate of 3 kg/ha during the fruit growth stage with 15 – 20 day intervals. Perform a post-harvest application of 5 kg/ha before dormancy.
Applications on grapes should start at flowering stage with 2-4kg/ha. Continue with the same applications as other fruit trees.

GROLEAF 30-10-10 + TE + QPS45

GROLEAF 30-10-10 + TE + QPS45 is recommended for use as a foliar supplement for a quick recovery when crops are being damaged after winter. It is also used when a high nitrogen supply is quickly needed during the vegetative growth or after fruit setting.
The foliar dosage rate varies from 0.5 – 5 kg/ha with a maximum concentration of 0.5% (or 500 g/100 L water). Maximum dosage not to be exceeded.

GUARANTEED CONTENT	%W/W
Nitrogen (N) Nitrate nitrogen ($N\text{-}NO_3$) Ureic nitrogen ($N\text{-}NH_2$)	30.0 0.30 29.7
Phosphorous Pentoxide (P_2O_5)	10.0
Potassium Oxide (K_2O)	10.0
Boron (B), water soluble	0.20
Copper (Cu), EDTA-chelated	0.05
Iron (Fe), EDTA-chelated	0.40
Manganese (Mn), EDTA-chelated	0.20
Molybdenum (Mo), water soluble	0.005
Zinc (Zn), EDTA-chelated	0.4
QPS45 complex	2.0

RATES OF USE AND APPLICATION TIMING

CEREALS

Apply 2 - 4 kg/ha in spring or after winter dormancy.

POTATO

Apply 5 kg/ha at the beginning of tuber growth and filling. Repeat 10 days later.

ONION, LETTUCE

Apply 4 kg/ha at the accelerated vegetative growth. Repeat 10 days later.

GREENHOUSE VEGETABLES

tomato, cucumber, eggplant

Apply 0.5 - 1 kg/ha during the vegetative growth; repeat with the same dose after fruit setting and during fruit growth.

OPEN FIELD VEGETABLES

tomato, cucumber, melon, water melon

Apply 2 - 4 kg/ha during the accelerated vegetative growth. Repeat 10 days later.

SOFT FRUITS

strawberries, raspberries, blackberries

Apply 2 - 4 kg/ha at the accelerated vegetative growth; repeat with the same dose on green fruits and during the bulking stage.

FRUIT TREES:

apples, pears, cherries, peaches, grapes, olives

Apply 3 - 5 kg/ha after fruit setting. Repeat twice at the rate of 3 kg/ha during the fruit growth stage with 15 – 20 day intervals.
Applications on grapes should start at flowering stage with 2-4kg/ha. Continue with the same applications as other fruit trees.

GROLEAF 0-40-40 + TE + QPS45

GROLEAF 0-40-40 + TE + QPS45 is recommended for use as a foliar supplement for stages where the phosphorus and potassium are critical for the crop establishment (root development and flower initiation) and during fruit maturation.
The foliar dosage rate varies from 0.5 – 5 kg/ha with a maximum concentration of 0.5% (or 500 g/100 L water). Maximum dosage not to be exceeded.

GUARANTEED CONTENT	%W/W
Nitrogen (N)	0
Phosphorous Pentoxide (P_2O_5)	40.0
Potassium Oxide (K_2O)	40.0
Boron (B), water soluble	0.20
Copper (Cu), EDTA-chelated	0.05
Iron (Fe), EDTA-chelated	0.40
Manganese (Mn), EDTA-chelated:	0.20
Molybdenum (Mo), water soluble	0.005
Zinc (Zn), EDTA-chelated	0.4
QPS45 complex	2.0

RATES OF USE AND APPLICATION TIMING

CEREALS
Apply 2 - 4 kg/ha at 3 – 4 leaf stage and during the tillering.

POTATO
Apply 5 kg/ha at the tuber initiation. Repeat 10 days later.

ONION, LETTUCE
Apply 4 kg/ha at the beginning of the crop cycle. Repeat 10 days later.

GREENHOUSE VEGETABLES
tomato, cucumber, eggplant

Apply 0.5 - 1 kg/ha after transplatnting. Repeat 10 days later.

OPEN FIELD VEGETABLES
tomato, cucumber, melon, water melon

Apply 2 - 4 kg/ha after transplanting or germination. Repeat 10 days later.

SOFT FRUITS
strawberries, raspberries, blackberries

Apply 2 - 4 kg/ha after transplanting or at the beginning of root activity. Repeat 10 days later.

FRUIT TREES:
apples, pears, cherries, peaches, grapes, olives

Apply 3 - 5 kg/ha after fruit setting. Repeat twice at the rate of 4 kg/ha during the fruit maturation stage with 15 – 20 day intervals.
Applications on grapes should start before fruit setting with 2-4kg/ha. Continue with the same applications as other fruit trees.

GROLEAF 10-40-10 + TE + QPS45

GROLEAF 10-40-10 + TE + QPS45 is a high phosphorus formulation with a balanced content of nitrogen and potassium useful when high available phosphorus is required. It is recommended for use as a foliar supplement during the root development and flower initiation stages. The foliar dosage rate varies from 0.5 – 5 kg/ha, with a maximum concentration of 0.5% (or 500 g/100 L water). Maximum dosage not to be exceeded.

GUARANTEED CONTENT	%W/W
Nitrogen (N): Nitrate nitrogen ($N\text{-}NO_3$) Ammonium nitrogen ($N\text{-}NH_4$)	10.0 2.75 7.25
Phosphorous Pentoxide (P_2O_5)	40.0
Potassium Oxide (K_2O)	10.0
Boron (B), water soluble	0.20
Copper (Cu), EDTA-chelated	0.05
Iron (Fe), EDTA-chelated	0.40
Manganese (Mn), EDTA-chelated	0.20
Molybdenum (Mo), water soluble	0.005
Zinc (Zn), EDTA-chelated	0.4
QPS45 complex	2.0

RATES OF USE AND APPLICATION TIMING

CEREALS

Apply 2 - 4 kg/ha at 3 – 4 leaf stage and at the beginning of tillering.

ALFALFA

Apply 2 – 4 kg/ha early in the season during the crop establishment.

POTATO

Apply 5 kg/ha during the tuber initiation stage. Repeat during the beginning of tuber growth stage and 10 days later.

ONION, LETTUCE

Apply 4 kg/ha at the beginning of the crop cycle.

GREENHOUSE VEGETABLES

tomato, cucumber, eggplant

Apply 0.5 - 1 kg/ha after transplanting; repeat with the same dose before fruit setting.

OPEN FIELD VEGETABLES

tomato, cucumber, melon, water melon

Apply 2 - 4 kg/ha after transplanting or germination. Repeat 10 days later.

SOFT FRUITS

strawberries, raspberries, blackberries

Apply 2 - 4 kg/ha after transplanting or at the beginning of root activity. Repeat 10 days later.

FRUIT TREES:

apples, pears, cherries, peaches, grapes, olives

Apply 3 - 5 kg/ha after fruit setting. Repeat with the rate of 5 kg/ha at post-harvest. Applications on grapes should start before fruit setting with 2-4kg/ha. Continue with the same applications as other fruit trees.

GROLEAF 5-10-43 + TE + QPS45

GROLEAF 5-15-45 + TE + QPS45 is a high potassium formulation especially designed for use during the fruit growth and maturation stages where a high demand of available potassium is required. It is recommended for use as a foliar supplement during fruit growth and maturation stages.
The foliar dosage rate varies from 0.5 – 5 kg/ha, with a maximum concentration of 0.5% (or 500 g/100 L water). Maximum dosage not to be exceeded.

GUARANTEED CONTENT	%W/W
Nitrogen (N) Nitrate nitrogen ($N\text{-}NO_3$)	5.0 5.0
Phosphorous Pentoxide (P_2O_5)	10.0
Potassium Oxide (K_2O)	43.0
Boron (B), water soluble	0.20
Copper (Cu), EDTA-chelated	0.05
Iron (Fe), EDTA-chelated	0.40
Manganese (Mn), EDTA-chelated	0.20
Molybdenum (Mo), water soluble	0.005
Zinc (Zn), EDTA-chelated	0.4
QPS45 complex	2.0

RATES OF USE AND APPLICATION TIMING

CEREALS
Apply 2 - 4 kg/ha at 3 – 4 days after ear formation and during maturation.

ALFALFA
Apply 2 – 4 kg/ha at 15-20 days before each harvest.

POTATO
Apply 5 kg/ha during the tuber growth stage. Repeat 10 days later.

ONION, LETTUCE
Apply 4 kg/ha during the maturation stage.

GREENHOUSE VEGETABLES
tomato, cucumber, eggplant

Apply 0.5 - 1 kg/ha after fruit setting. Repeat 10 days later.

OPEN FIELD VEGETABLES
tomato, cucumber, melon, water melon

Apply 2 - 4 kg/ha after fruit setting. Repeat 10 days later.

SOFT FRUITS
strawberries, raspberries, blackberries,

Apply 2 - 4 kg/ha on green fruits and during the fruit maturation stage.

FRUIT TREES:
apples, pears, cherries, peaches, grapes, olives

Apply 3 - 5 kg/ha after fruit setting. Repeat twice at the rate of 4 kg/ha during the fruit maturation stage with 15 – 20 day intervals.

Compability & Storage

Groleaf is compatible with the majority of agrochemicals and fertilizers used. It is recommended to perform a small scale test before proceeding.

Store in original packing away from humidity and direct sunlight. If the product comes into contact with eyes, wash immediately with plenty of water.

Keep out of reach of children.

Store away from food, beverage and animal feedstuff.

Recommendations

It is not recommended to spray during strong sunshine and/or times of high evapotranspiration.

GROLEAF

FOLIAR NUTRITION

LIMA EUROPE

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