

# HOW TO PROPERLY FOLIAR SPRAY

## Foliar Spraying Tips:

- Always use purified (no minerals /chlorine) water to avoid clogging sprayer or damaging sensitive plant leaves.
- pH solution to whatever either the label suggests or else to whatever pH you are currently feeding plants at. An example of this is 6.5 for soil and 6.0 for hydroponics.
- Best effect is achieved by creating a fine mist out of the spray content. Use of pressurized/compression sprayers are advised. Alternatively, you can get cheaper compression sprayers. In general try to get a plastic tip as they seem to work better than metal tipped ones.
- Make sure to spray undersides of the leaves where the plants stomata's are located. Full coverage is key.
- It is best to spray when temp is below 80° F if not using CO2. If using CO2 then spray at 86° F. At this temp, the stomata on the undersides of the leaves are open. It is best to spray at the end or beginning of day.
- Absorption is best when environmental conditions are humid—55-70% humidity.
- It is highly advisable to use a wetting agent/surfactant such as **Coco Wet** for pesticides that will “stick” better on leaves. These wetting agents are not just “detergent” or “dish soap,” they will not damage the cuticle layer of the plant's leaves. Wetting agents will make the water molecules “wetter,” spreading them apart from one another; preventing “blotching” or grouping together of water spots. This blotching of water molecules in turn will create a magnifying glass effect which when intense light hits it can in turn burn your leaves. Wetting agents will also help deliver additives into the plant up to 300% better than just spraying alone (without the use of a wetting agent).
- Always be aware of what you are spraying at your plants. Make sure to mix additives that can be combine safely with other additives. Also, make sure that you are not adding two of the same or similar products together (both at full strength). (An example of this is blending two kelp products such as **Alg-A-Mic** or **Heavy Prime**.)
- Whenever spraying something new, we suggest spraying one strain of each type of plant you have. Wait to see if each plant takes to the foliar delivery well (1 day should suffice). See how that plant does (This goes for additives, enhancers, nutrients, or pesticides.) If this one plant is healthy than continue to spray the entire crop.
- This is a general rule that will not apply to every additive. Whenever you spray, the lights should be off and fans turned on for 2-3 hours, making sure the leaves dry out. Then when you turn lights back on, raise them up one foot above where they have been, for one day. This will help ensure NO leaves get burned.

## How Nutrients and Additives are Absorbed and Translocated Within a Plant

Plants can absorb additives and nutrients through the stomata (main avenue) as well as through their waxy cuticle layer. This is why it is important to spray both sides of the leaves for better absorption. Although most additives get absorbed through the stomata, they can also be absorbed through the rest of the leaf tissue as well. Since the stomata are the main pathway into the cell, we will focus our conversation on them. Under most conditions, stomata open when light strikes the leaf at the beginning of daytime (morning) and close at the end of the day during the dark period (night.) The immediate cause is a change in water pressure (turgor) of the guard cells within the plants leaf tissue. Each guard cell has a thick, elastic inner wall. When turgor develops within the two guard cells flanking each stoma, the thin outer walls bulge out and force the inner walls into a crescent shape. This opens the stoma. When the guard cells lose turgor, the elastic inner walls regain their original shape and the stoma closes.

A very permeable pathway exists for the movement of nutrients through the surface of the leaf to the various living tissues within the plant. It has been found to be very fast—roughly an hour to move from the leaf to within the plant itself. Most applied additives are absorbed into and throughout the entire plant in a day's time. Such applied nutrients move rapidly to new growing points of stems and roots, thus have an immediate effect on growth and development. Soil, or root zone applied fertilizers/additives can take much longer to get into the plants inner tissues and effect growth.

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We recommend foliar spraying at least every 3 days. Please feel free to mix and match the foliar recipes below. Follow their suggested use time for each given recipe. Also ask us about some of our other favorite recipes.

## Foliar Recipe with Heavy Foliar, Heavy Roots and Heavy Fire

Heavy Foliar provides for both full spectrum plant nutrition and protection. It does this by increasing the biochemical rate of photosynthesis through correct concentrations of select dichotomous plant based carbs or what we call *Pre-Formed Photosynthates*. Heavy Foliar also provides a highly absorbable form of calcium, a slew of micro-nutrients, which when combined provide for environmental plant protection.

### APPLICATION INSTRUCTIONS:

- Apply this spray every 3 days. Start with just 40 mL of Heavy Foliar per quart of purified (RO) water and ramp up to the following recipe by week 2 of Veg. Maintain this level throughout weeks 1-4 of Bloom.
- Quart Sprayer—Mix 30 mL of Heavy Foliar, 1 mL of Heavy Roots and 1 mL of Heavy Fire in one quart of purified (RO) water.

## Einstein Oil and Coco Wet

Neem oil is a great preventive for warding off/controlling a variety of pests (spider mites, thrips, white fly's, aphids, etc.) as well as keeping powdery mildew at bay. Neem works best if sprayed consistently every 3 days. We suggest Einstein Oil because it is "cold pressed" and retains more of the active ingredients than other products. Mix with Coco Wet and apply at lowest dosage at first. Raise dosage up slightly every spray until max application rate is reached.

### APPLICATION INSTRUCTIONS:

- Apply this spray every 3 days. Build dosage up from lowest to highest then ride highest dosage out until 4th week of Bloom.
- Quart Sprayer—Mix 1/2 - 2tsp. of Einstein Oil and a few drops of Coco Wet per Quart of "warmed up" purified (RO) water.
- Gallon Sprayer—Mix 2 - 8tsp. of Einstein Oil and a 1/4 tsp. of Coco Wet per Gallon of "warmed up" purified (RO) water.

## HB-101

This stimulant/protectant (brought to us from Japan) is made from Pine Oil and is amazing at keeping plants perky and in general "healthy". Pine oil was proven to be a non-toxic plant defender, growth stimulator, and liquid organic fertilizer. It provides effective control against most pests and root pathogens. Pine Oil will also increase Yield significantly.

### APPLICATION INSTRUCTIONS:

- Apply this spray every 7 days.
- Quart Sprayer—Mix 1mL of HB-101 per Quart of reverse purified (reverse osmosis) water. No wetting agent is used.
- Gallon Sprayer—Mix 4mL of HB-101 per Gallon of reverse purified (reverse osmosis) water. No wetting agent is used.