



Foliar Feeding With AGGRAND

Foliar feeding with AGGRAND is up to 20 times more efficient than applying amendments to the soil. The keys to optimizing the results when using AGGRAND products, is to apply them when plants need the extra nutrients, use a biodegradable vegetable oil surfactant (spreader-sticker) to maximize adhesion to the leaf surface, adjust the pH of the fertilizer solution to maximize uptake and plant use efficiency. Apply them in the early morning or late evening, and do not apply before or after rainfall or irrigation.

Plants need extra nutrients during transplanting, early growth and development, pre-bloom, early bloom, and fruit formation. Foliar applications are effective in situations where a soil chemistry imbalance, cold soils, or low soil fertility limit the root uptake of nutrients. Most plants respond to foliar applications when they are timed to coincide with seedling emergences (3-6" in height after 2 to 4 true leaves have formed), 2-3 weeks before first bloom (legumes such as snap beans or soybeans), first bloom (tomatoes, cucumbers, melons), runnering (cucumbers, melons) cluster formation (tomatoes), and fruit fill (tomatoes, melons, cucumbers). When AGGRAND 4-3-3 and 0-0-8 fertilizers are applied before drought, frost, insect attack, or the onset of disease-susceptible stages the effects of the stress will be reduced or eliminated.

Some growers apply AGGRAND fertilizers on a calendar-based approach every so many weeks up to 8 times per season. Apply these fertilizers according to recommendation rates given earlier in this guide for applications given every 3-4 weeks. A 1-4% dilution rate (1.25-5 oz. AGGRAND per gallon of water) is sufficient for foliar applications. Use more concentrated fertilizer concentrations on heavy feeders and low fertility soils. Never exceed 4% because the foliage could get damaged. On sandy soils reduce the rate by $\frac{1}{4}$ to $\frac{1}{3}$ and apply every 2-3 weeks (reduce by $\frac{1}{3}$ and apply every 2 weeks for heavy feeders on sandy soil). If you choose to apply AGGRAND products every week split the application rate in half (1% dilution rate).

AGGRAND 4-3-3 and AGGRAND 0-12-0 products can also be applied to promote flowering, fruit, and seed formation. Apply these products when the plants have reached the phase (size, age, and time of year) when flowering is possible.

To increase adhesion of the spray to the leaf surface, add a spreader-sticker to the spray tank. A biodegradable vegetable oil based product that is non-toxic is recommended. Mix according to the directions (1.5-2.0% dilution rate)(2-3 oz./gal.) is usually recommended.

To optimize uptake and plant use efficiency of AGGRAND products, adjust the ph of the fertilizer solution to the proper level for the particular stage of growth. Adjust the spray mix ph to less than 6.5 to promote vegetative growth, and 7.0-7.4 to promote flower, seed, and fruit formation. Use baking soda, hydrated lime, or calcium nitrate to raise the ph and apple cider vinegar to lower the ph. Calcium nitrate works the best with AGGRAND 4-3-3 because it produces the most balanced chemistry. When using baking soda, do not use more than 1 tbs./gal. of the fertilizer mixture because it will add too much sodium. Test the solution with litmus paper, which is made to test both acidic and alkaline solutions. Use only a small amount of the spray solution-adjusting agent at a time, before retesting the solution ph (until you are comfortable with the process of adjusting spray ph).

When AGGRAND Fertilizers are injected into irrigation systems, optimum plant responses are possible because the plants are fed through the leaves and roots, and the microbial activity in the soil is stimulated. Transplant shock is eliminated when AGGRAND 4-3-3 and 0-0-8 fertilizers are applied immediately after transplanting. Early plant growth and development of seeded crops are maximized by applying AGGRAND 4-3-3, 0-0-8, and 0-12-0 fertilizers once several true leaves have developed. Injection is the easiest and most effective way to obtain optimum results,

To apply AGGRAND fertilizers through irrigation systems dilute the fertilizers with water in the mix tank. Depending on the volume of the mix tank, the fertilizer is diluted to different concentrations, 50% dilution is typical. Then this mix is filtered through a 50-100-mesh filter before injecting it into the irrigation water. Depending on how often the fertilizer is applied, how much water is being applied, and the concentration of the fertilizer in the mix tank, the injection ratio varies between 25 to 1 and 200 to 1. The final dilution rate is between 0.25% and 2.0%,

On standard field sprayers, use turbo flood jet nozzles and remove the nozzle screens if necessary, to reduce clogging when applying AGGRAND fertilizers. Standard flood jets, extended range flat fans, or disk nozzles may also be used. In addition, self-cleaning line strainers (by-pass filters) recirculate particulates until they are broken down through agitation and pump sheering action (especially useful when applying AGGRAND Bonemeal and Liquid Lime. All line strainers (by-pass and in-line) should be placed on the output side of the pump to maximize pressure and flow in the system.

NOTE: Special instruments (conductivity meter and ph meters) are available for checking the spray solution strength and ph (soil can be tested with meters also). A refract meter, ph meter, and conductivity meter can also be used to monitor plant health and development in the field by extracting a small amount of plant sap and placing it on the measuring element of the meter.