

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 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, and adjust the ph of the fertilizer solution to maximize uptake and plant use efficiency. Apply in the early morning or late evening, and do not apply before or after rainfall or irrigation.

Timing

Plants need extra nutrients during transplanting, early growth and development, pre-bloom, early bloom and fruit formation. Foliar applications are effective when soil chemistry imbalance, cold soil, or low soil fertility limit the root uptake of nutrients. Most plants respond to foliar applications when they are timed to coincide with seedling emergence (3 to 6 inches in height after 2 to 4 true leaves have formed), 2 to 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 up to eight times per season. A one to four percent dilution rate (1.25 to 5 oz. AGGRAND per gallon of water) is sufficient for foliar applications. Use higher fertilizer concentrations on heavy feeders and low fertility soils. Never exceed four percent because the foliage could be damaged. On sandy soils reduce the rate by one-quarter to one-third and apply every two to three weeks (reduce by one-third and apply every two weeks for heavy feeders on sandy soil). If you apply AGGRAND products every week split the application rate in half (one percent 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 biodegrad-



able non-toxic vegetable oil based product is recommended. Mix according to the directions (1.5 to 2 percent dilution rate, two to three oz./gal.) is usually recommended.

PH adjustment

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 to 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).

Irrigation

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 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, but 50 percent 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 25-1 and 200-1. The final dilution rate is between one-quarter and 2 percent.

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.

Soil Applications

Gardens can be tilled in the spring and fall. Fall tillage combined with a fertilizer application aids in the breakdown of crop residue and provides readily available nutrients from the fertilizer and decomposed organic matter by the next year.

A spring fertilizer application provides some readily available nutrients, but more of the nitrogen is locked up through the decomposition of plant residue. Either way, fertilizer should be applied at planting time for optimum results. AGGRAND 4-3-3 Natural Fertilizer can be applied either time. A soil test of the garden area is beneficial in determining the most useful fertilizer rates and combinations to use. For most gardens one quart of AGGRAND 4-3-3 tilled into 1,000 to 2,000 square feet of garden is sufficient for the production of most crops.

Using AGGRAND products in spring soil preparation and fall tillage is straightforward. The applications are made by spray broadcasting AGGRAND before the final trip over the garden with the rototiller. The soil is allowed to dry before tilling in the fertilizer. In the fall the soil should not be tilled as finely or as deeply, but the fertilizer application is still made before the final pass with the tiller.

Another way AGGRAND products are used for garden crops is banding the fertilizer into a trench

near the seed. The best way to band fertilizer is to dig a trench slightly to one side and beneath where the seed will be placed (2-4" below and 1-2" to the side of the seeds). The fertilizer is mixed with water and then dribbled into the trench. Another furrow is formed just to one side of this trench and then the seed is planted in the furrow.

Finally, fertilizer is applied to some crops by broadcasting AGGRAND with a hose-end sprayer or other equipment after the seed is planted.

Prevent Blossom-End Rot

Blossom-end rot (BER) leaves a sunken, brownish-black spot on the bottom, or blossom end, of tomatoes. It is caused by calcium displacement; calcium being sent to the newer, growing tissues rather than an actual shortage. Consistent watering and early fertilization with AGGRAND Natural Liquid Fertilizer 4-3-3 supplemented with AGGRAND Natural Liquid Bonemeal 0-12-0 will help prevent BER from damaging your tomatoes. Also avoid using high-nitrogen fertilizers that can promote too much leafy growth.

Transplant with AGGRAND

Transplanting is a stressful period for young bedding plants. Minimizing transplant shock keeps plants growing vigorously, avoiding flowering delays and reduced yields.

AGGRAND Natural Fertilizer is a must for watering-in small transplants. Use a mixture of three oz. of AGGRAND 4-3-3/gal. of water for watering-in transplants. The addition of one to two oz. of AGGRAND Liquid Bonemeal to the solution to increase phosphorus and calcium availability when watering-in the transplants will aid in promoting long-term root development. Shrubs and trees should be soaked overnight in a bucket of 4-3-3 before transplanting. Use a mixture of one oz. of AGGRAND 4-3-3/gal. of water for bare root soaking.

- Avoid transplanting during the heat of the day to avoid root desiccation (drying out).
- Cloudy weather is the best time to transplant.
- Keep soil moist until root systems are well established.

