

## Using AGGRAND to Grow Citrus Fruits

Nitrogen is typically the limiting macronutrient in citrus production. Recommendations when using chemical fertilizers are one quarter to one half pound of actual nitrogen per tree per year. However, organically growing citrus requires only 5 percent to 10 percent of that amount because biological activity in the soil fixes nitrogen from the atmosphere, releases nitrogen from organic matter applied as compost, cover crops, and AGGRAND fish and kelp products.

Minor nutrient deficiencies are usually the only other disorders that necessitate the application of corrective measures. Most often, application of AGGRAND fertilizers corrects any deficiencies.

Applications of AGGRAND fertilizers stimulate soil biological activity, supply macro and micronutrients, and release nutrients from the soil. Application of AGGRAND products along with organic matter, improves plant cell structure and the water-holding capacity of the soil.

### Foliar Applications

The foliar application of AGGRAND fish and kelp fertilizers corrects many micronutrient deficiencies and increases drought, heat and cold tolerance of citrus. Foliar applications of AGGRAND fertilizers reduce pest problems in citrus production. Foliar application of AGGRAND products as part of an early bloom, summer and fall spray program effectively reduces the number of insect pests.

- Mix 1 to 2 gallons of AGGRAND 4-3-3 with 50 to 100 gallons of water. Thoroughly cover the leaves with a fine mist. Apply with pre-bloom, post-bloom and summer sprays. Optimize results by adding 1 to 2 quarts of AGGRAND 0-0-8 to the mix.
- Mix 1 to 2 quarts of AGGRAND 0-0-8 in 50 to 100 gallons of water. Apply with fall spray and 1 to 2 months before harvest (pre-harvest application increases the shelf life of fruit).

The addition of fulvic acid increases penetration of the leaf cuticle. Add 1 to 2 pints to the spray tank along with the fertilizer. Use 1 pint when applying AGGRAND 4-3-3 and 0-0-8 together. Rates vary according to soil fertility and other inputs.

Higher dilution rates are more effective than lower dilutions rates. Do not exceed a 3 percent dilution rate (3 gallons of AGGRAND to 100 gallons of water).

The addition of a biodegradable surfactant increases uptake by increasing adhesion to the leaf surface. Apply AGGRAND in early morning or late evening. Do not apply before or after rainfall or irrigation. On standard sprayers, use turbo flood jet nozzles when applying AGGRAND to reduce clogging.

### Soil Applications

Apply 2 to 3 gallons of AGGRAND Natural Fertilizer 4-3-3 diluted in 20 to 80 gallons of water. Apply to 1 acre with a field sprayer in spring and fall.

### Root Applications

Apply with irrigation water 2 to 4 times per month between pre-bloom periods to one month after harvest (apply more often on lighter soils with low organic matter content). When applying AGGRAND with irrigation water use a dilution rate that results in 6 to 20 gallons acre/year.

### **General Applications**

Apply ½ - 1-1/2 quarts per tree per year or 12 to 45 gallons an acre/year (rates depend on tree population, soil fertility, and the use of cover crops and/or application of compost or manure). The total amount includes soil and foliar applications.

The application of compost, composted manure, and incorporation of green manure crops improves soil structure, nutrient, and water holding capacity of desert soils. Annual medics (medicago spp) such as barrel medic (medicago truncatula), strand medic (m.littoralis) and snail medic (m. scutellata) are low growing and adapted to neutral to alkaline soils. These species will grow during the cool season and go to seed before summer. They add organic matter and nitrogen to the soil. They must be kept short by mowing to 3-5" in height.

### **Organic Citrus Production in Desert Climates**

#### **Soil Factors**

Coarser textured soils with good drainage produce the highest yields, but citrus production is also possible with finer textured soils with good drainage.