



## Plant Health Care Inc.

440 William Pitt Way  
Pittsburgh, PA 15238

# Technical Bulletin

037 09/21/00

## YUCCA<sup>TM</sup> LIQUID CONCENTRATE

Plant Health Care, Inc.'s liquid wetting agent, Yuccah<sup>TM</sup> Liquid Concentrate, is sold as a wetting agent and spreader, and for use as an adjuvant with fertilizers or pesticides. Unlike other commercial wetting agents, Yuccah<sup>TM</sup> offers several unique benefits to plants and soil.

### *Natural Based Wetting Agent*

Yuccah<sup>TM</sup> is made from the extract (or "juice") of the *Yucca schidigera* plant. Yuccah<sup>TM</sup> extract is rich in saponins, a bitter-sweet class of compounds that are nutritious and have surfactant qualities making them good wetting agents. By itself, yucca extract is approved by the FDA as a food additive, and it is used in various human food products, and in animal feed as well. PHC adds a small amount (10% by volume) of a synthetic surfactant to the Yuccah<sup>TM</sup> product to enhance its wetting abilities, so Yuccah<sup>TM</sup> is 90% natural and only 10% synthetic (therefore, this mixture is not edible.) Yuccah<sup>TM</sup> can be used alone to address dry spots on turf, or like other wetting agents, it can be used as a spreader or adjuvant with pesticides or fertilizers to increase their coverage and effectiveness.

### *Nonphytotoxic*

Synthetic wetting agents can have toxic qualities on plants producing a "burn" or other harmful effects. Yuccah<sup>TM</sup> has been tested on Crenshaw creeping bentgrass (*Agrostis palustris*) at the University of Georgia's Turfgrass Facility at the rate of 6-oz per 1000 square feet (2-gallons per acre), and was declared to be nonphytotoxic based on subsequent color and quality of the turf grass after 2 applications 4-weeks apart. Neither burn nor growth abnormalities occurred. Color and vitality of treated plants were excellent. Tests performed elsewhere showed that applications of yucca extracts were not phytotoxic even at 24-oz per 1000 square feet (8-gallons per acre).

### *Stimulates Soil Microbe Activity*

The saponins in Yuccah<sup>TM</sup> are readily used as a natural organic food source by soil microorganisms, stimulating their activity in the rhizosphere. So as Yuccah<sup>TM</sup> biodegrades naturally, it contributes to the population of beneficial rhizosphere bacteria. This is important in landscaped environments where the leaf litter and lawn clippings are routinely hauled away and are unavailable for natural microbial nutrition.

### *Contributes to Soil Structure*

The microbial decomposition of Yuccah™ directly stimulates the microbes which actively improve soil structure. Soil bacteria and fungi produce mucous-like substances which bind soil particles into loose aggregates. These aggregates reduce the soil density by increasing porosity, thereby reducing compaction. Since Yuccah™ is also a wetting agent, it penetrates deeper into compacted soil, where there is a greater need for improved soil structure. The microbes follow it in to devour the saponins, thereby improving soil structure where it is needed most. Regular use of organic microbial biostimulants, like Yuccah™, will gradually improve soil structure by increasing soil aggregates via microbial stimulation.

### *Binds Ammonia*

Yuccah™ has other interesting qualities, which result in some novel applications. For example, saponins will readily bind ammonia. This is useful in animal stalls, where the ammonia smell from urine can be a problem. Periodic spraying of the stall with Yuccah™ knocks down the ammonia odors, and keeps them under control for extended periods. We currently have customers who regularly use Yuccah™ in their horse stalls for this purpose.

### *Prevents Dew*

Yuccah™ can prevent the condensation of dew on turf grass. This is great for golfers, who dislike the wetness of early morning greens. Yuccah™ applied at a rate of about 5 cc per square meter (a teaspoon per square yard) can effectively inhibit dew condensation on turf for 2 weeks, (depending on rainfall). However, this is a rather high rate of application, amounting to about 5-gallons per acre. Therefore, such a treatment would be limited to greens for economic reasons. This is further complicated by the fact that the duration of the treatment's effectiveness can be reduced by the frequency and degree of watering. However, if a major tournament is scheduled, and dew is a concern, this treatment might be economically viable in such special circumstances.