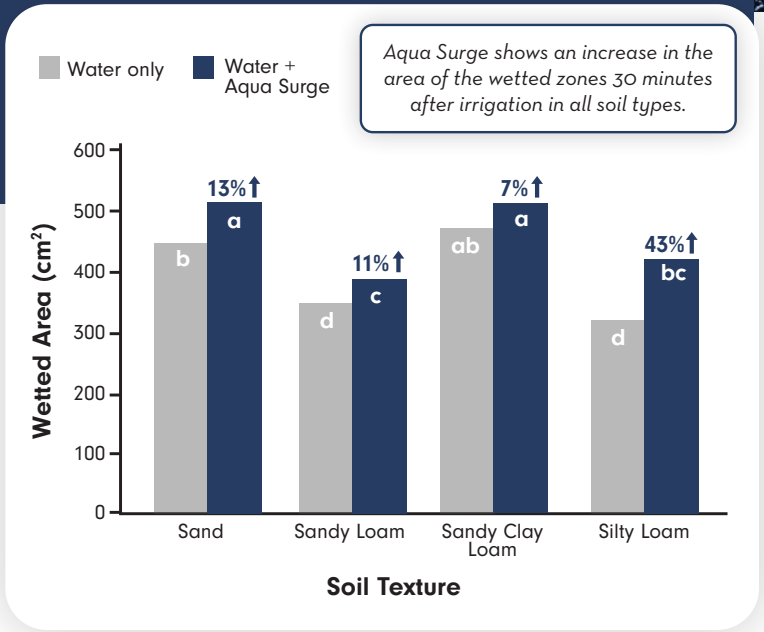
NUTRIENT TECH
by DSG

Aqua Surge™

is a patented technology that enhances uniform movement of water (both irrigation and rainfall) **in agricultural soil.**

- Improves the availability of water and nutrients to the plant
- Improves infiltration allowing water and nutrients to move into the rootzone
- Improves the lateral movement of water
- Improves penetrability of compacted soils
- Improves the distribution of nutrients
- Reduces soil crusting



Better Water Movement

Water works to transport materials in soil. If water is not moving through the soil or being distributed properly, neither are the important inputs that it carries.

Water follows the path of least resistance. Untreated soils can be subject to irregular wetting patterns with water moving through faster in some areas and bypassing other areas altogether.

Aqua Surge encourages the formation of a more stable wetting front, moving water, fertilizer and other inputs more uniformly through the soil profile. Aqua Surge ensures that your entire crop gets not only the water it needs, but also the fertilizers and other soil-applied inputs incorporated into your crop management program.

The following information, excerpted from previous university studies shows excellent performance from this patented chemistry.

Addition of Aqua Surge to water increased the vertical movement of water compared to water alone in the test soil. The wetted soil area in the horizontal direction was also greater with the wetting agent, but not statistically significant at all 3 depths measured. Aqua Surge resulted in 43% higher wetted area at 30 minutes and 55% greater wetted area at 60 minutes of study.

A follow up study with more soil types conducted by the same university showed increased wetted area with Aqua surge application as early as 30 minutes after initiation.

A California study to demonstrate product benefits utilized weekly irrigation water or water + surfactant treatments. Each pair of treatments was applied at different ETo levels. Results indicate the expected; that as the water stress increased, corn yield and biomass decreased. All treatments receiving surfactant treatment at any Irrigation level performed better than their water only counterparts. The results of the experiment demonstrated that 60% irrigation with Aqua Surge produced grain and dry matter biomass that were comparable to 100% irrigation without surfactant benefit. Plants receiving 100% water and the surfactant produced the best in total grain yield and forage yield. Results suggest that under water deficit conditions, yield may be maintained or even improved with correct use of Aqua Surge.

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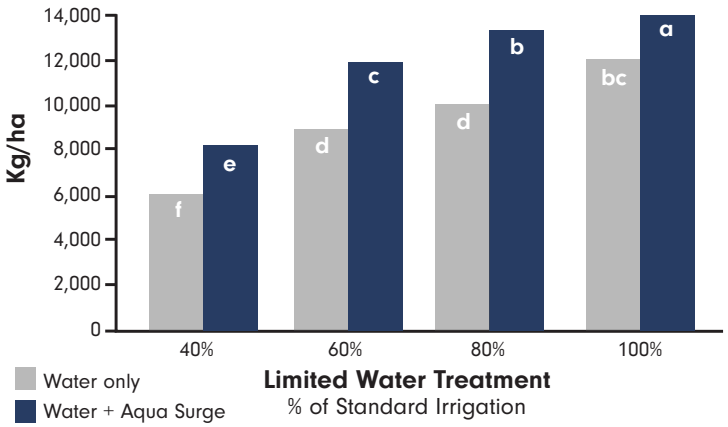
Replicated trials were conducted in the apple varieties 'Pink Lady' and 'Gala' growing on clay loam soils in Australia. The test consisted of at least 5 replicates per treatment. Surfactant was used at varying rates, applied to tree rows via a plot sprayer and irrigated into the soil with mini-sprinklers. As surfactant rate increased, wetting front depth increased and soil Volumetric water content (VWC) increased. In the surfactant treatments, soil VWC at 2 depths of the soil profile were 2-5 percentage points higher than at the same depths in the untreated control.

Treatments resulted in greater mean fruit size for both apple varieties in the surfactant treatments than in the untreated by up to 41g per fruit. In 'Pink Lady', surfactant treatment increased total yield by approximately 20% in each of the two test seasons. Yield increases in the surfactant treated 'Gala' were nearly 50% greater than the untreated control.

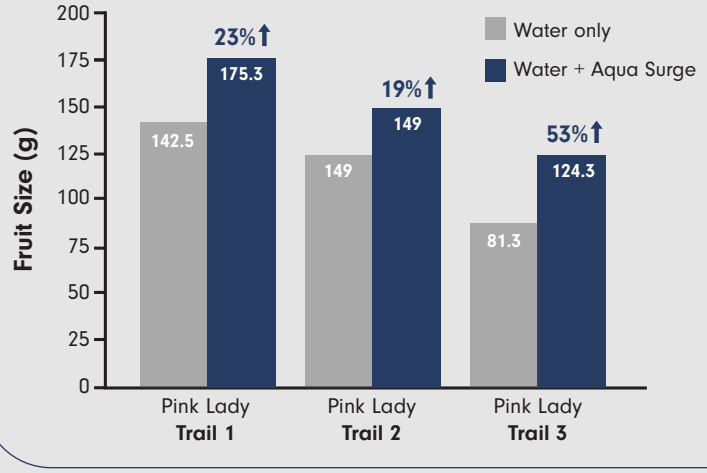
Grain Yield of Corn as Affected by Water Treatment and Surfactant Application



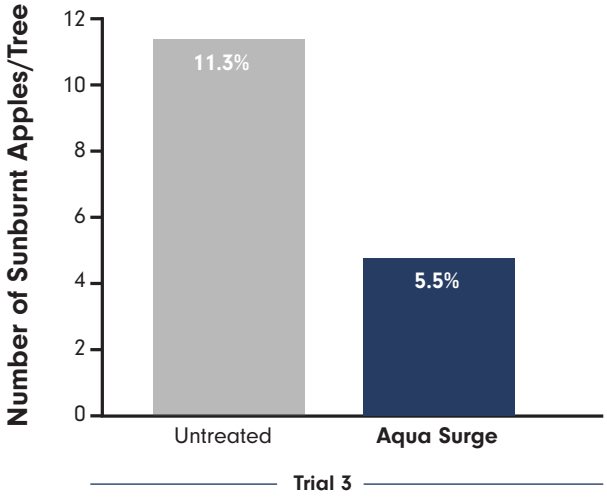
A trial was conducted in 2008 at Spadra Ranch in Pomona, CA by Dr. Chiachi and Dr. Mitra of Cal Poly comparing serval rates of deficit irrigation on corn with and without the addition of Aqua Surge. Grain yield and quality, along with plant biomass were evaluated to determine the best treatment.

The chart on the left represents harvest results and shows that 60% irrigation with Aqua Surge achieved the some yield as 100% irrigation without Auqa Surge. The area treated with 80% irrigation and Aqua Surge had the best harvest quality index of any other treatement. This data illustrates that under deficit irrigation yields can be maintained or improved, even with 20-40% less water, with the addition of Aqua Surge into the irrigation program.

Bigger Fruit Size



Less Sunburn Damage



*All study details and references available upon request.

Aqua Surge has demonstrated improved crop quality and increased yield due to improved irrigation efficiency and improved fertilizer (nitrogen) efficiency. Use of Aqua Surge makes water more readily available in the soil profile, promoting greater water uptake by plant roots and minimizing drought stress resulting in improved tolerance to abiotic stressors such as high light and heat.

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