# Tomatoes Under Deficit Irrigation

**Crop/Variety:** Tygress Tomato

**Location:** GCREC, Balm, Florida

**Investigator:** University of Florida, IFAS

# Demonstration Update

## Objective

To monitor field moisture levels in the rootzone, $NO_3$-N leaf concentration 5 weeks after treatment and marketable yields.

## Set Up

The experiment was set up as a randomized block design with 4 replications. Plants were in single rows, 2 feet apart. Beds were 28 inches wide on top and 32 inches on the base covered with metalized mulch. Plots were 30 feet with 5 foot alleys.

## Application

Two quarts per acre of WaterMaxx®2 were applied with a hydraulic injector at 0, 3 and 6 weeks after transplanting. Plots were irrigated with standard drip irrigation of 14 acre-inch/acre (1 acre-inch/acre = 27,154 gal) of water after plants' establishment. Three irrigation cycles ran each day, running 15, 20 and 30 minutes per irrigation from week 1 to 3, 4 to 6, and 7 to 12 respectively.

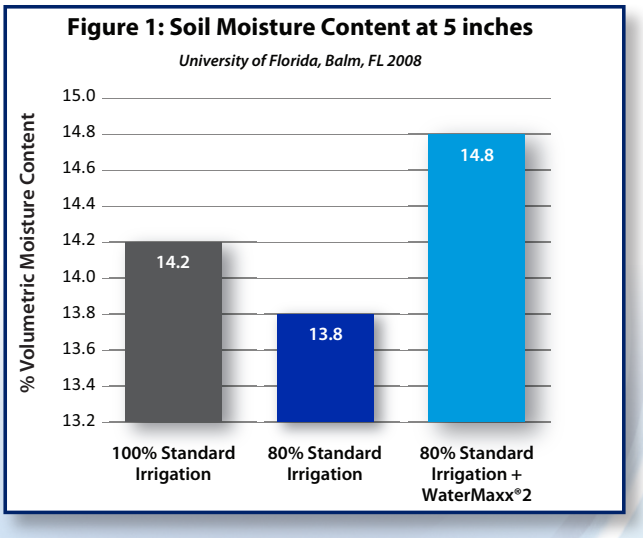
## Study Results

### Improved Moisture Content

WaterMaxx2 improved the moisture content in the soils at 5 inches deep. (Fig. 1) The increased moisture in the soil profile enabled the plants to maintain vigor even when irrigation rates were reduced to 60% of standard irrigation. (See photo, right).


**Figure 1: Soil Moisture Content at 5 inches**

*University of Florida, Balm, FL 2008*






Results may vary depending upon soil, climate and other conditions.

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## Results (cont/d)

### Nitrogen Use Efficiency

WaterMaxx®2 increased the NO3-N concentration in leaf petioles at 5 WAT, when used with 80% of the standard irrigation levels. (Fig.2)

### Yield Increase

There was a 4.1 ton/acre yield increase with the use of WaterMaxx2 at 80% standard irrigation compared to 80% standard irrigation alone. (Fig. 3) At the market price of $15.53/45#box the grower would realize a gross **increase of $2795.00/acre.**

### Conclusion

Water restrictions - be they governmental, reduced rainfall or financial cost associated with them- are forcing many growers to use less water. Growers can be productive with the use of WaterMaxx2 as a moisture management tool.

***Results from this data reveal that, as reduced irrigation practices become more common, the use of WaterMaxx2 will enable growers to maintain profitability with less water.***

**Figure 2: Effect of WaterMaxx®2 with 80% Standard Irrigation on $NO_3$-N Leaf Concrentration Levels**

*University of Florida, Balm, FL 2008*

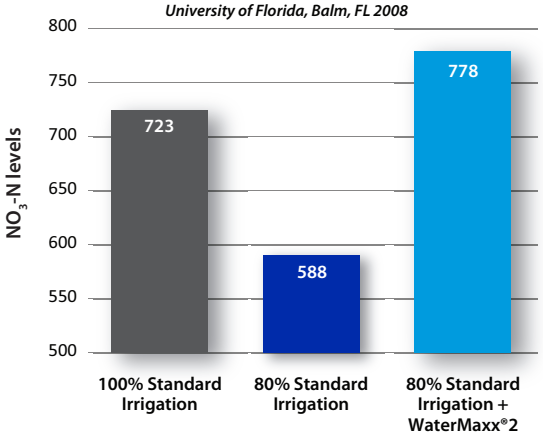


**Figure 3: Effect of WaterMaxx®2 on Tomato Yield with 80% Standard Irrigation**

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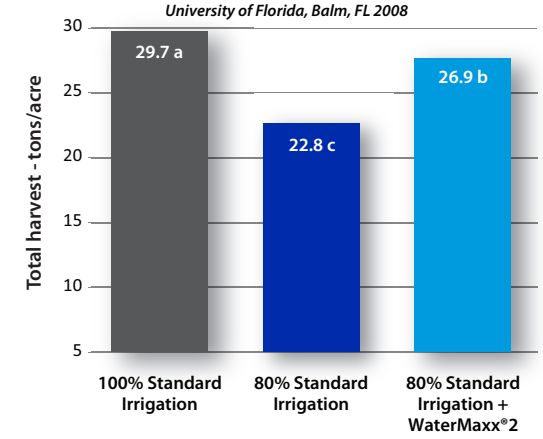


*Plants treated with WaterMaxx2 and irrigated at 60% standard irrigation.*

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