



## Black Ultra Reduces Water Requirements and Increases Yield in Peppers

### Background

In the Murcia region of southern Spain, farmers struggle with poor soils and an arid climate. They use fertigation and soil amendments to improve their soils and grow various types of fruits and vegetables. Irrigation water is expensive, so this field trial was conducted to study the increased water use efficiency of Black Ultra to see if a comparable crop could be grown with less water. Conducted in 2018, near El Mirador, Spain, it used California-type peppers and conventional drip irrigation practices.

### Methods

The objective of the trial was to monitor soil moisture and apply irrigation when needed by the plant. Irrigation timing and amounts were modified in both treatments based on moisture sensors found throughout the plots (figure 1). Sensors were placed at three different depths (15, 30 and 45 cm), and researchers monitored soil moisture and provided irrigation when needed. A total of 80 L/ha of Black Ultra was applied. Applications were made on three week intervals throughout the season, with 2 x 25L/ha applications early in the season, followed by 3 x 9L/ha applications later.



Fig. 1 Moisture sensors placed throughout the plot

The field was split in to a checkerboard pattern with a Test and Control area replicated four times (See figure 2). The control zones were grower standard practices and the test zones were grower standard practice plus the treatments of Black Ultra.

Control



Treated



The treatment zones received 35% less water (including associated fertiliser) than the control zone.

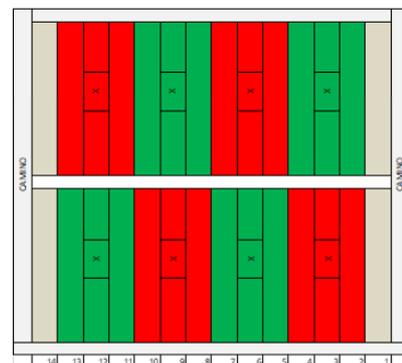


Fig. 2 Treatment zones



Reduced Crop Demand for Water by 35%



Increased Overall Yield by More than 18%



Powered by Reacted Carbon Technology

**BLACK  
ULTRA**



## Results

There was a 35% decrease in water usage in the zones with Black Ultra, with the same percentage decrease in nutritional inputs. (figure 3)

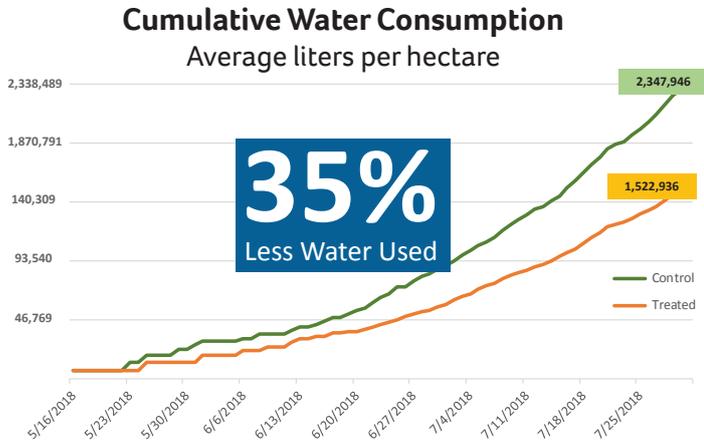


Fig. 3

Despite applying less water and nutrient, the production in the area treated with Black Ultra obtained excellent results, increasing yields by 18.22% over Standard Practice. (figure 4).

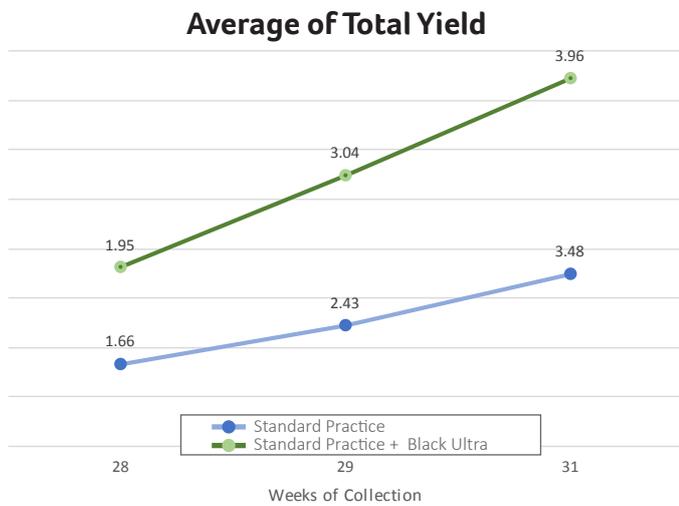
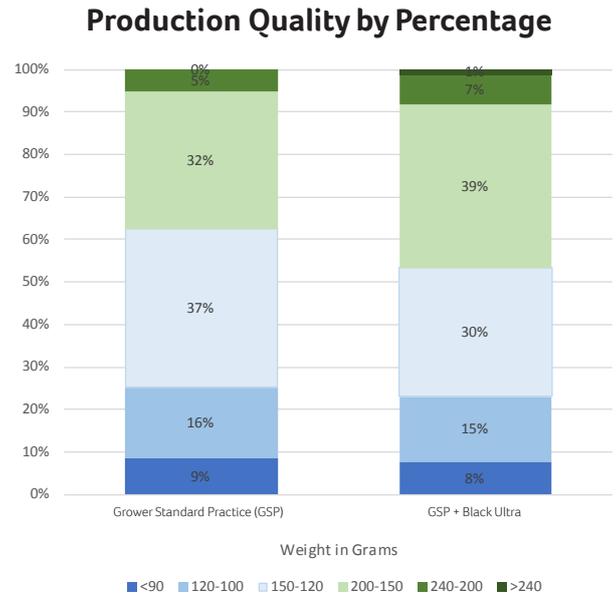


Fig. 4

Researchers evaluated the quantity and quality of produce from each treatment. In classification of the produce, the weight per unit was similar (or slightly better) in the Black Ultra treatment despite less water and nutrient being applied, with comparable commercial value to Grower Standard for the optimal sizes and ranges.



Product quality and quantity was evaluated in each of the 8 zones.

Fig. 5

## Conclusions

In replicated trials in Spain, we found that Black Ultra:

- Reduced water consumption by over 35%
- Maintained or increased crop yield over 18%
- Maintained or increased size and quality of commercial value of crop

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