

## Hydrogen Infused Water: Cut Flowers Test Report

### HyFrontier Technologies 2021 Cut Flowers Research Study

#### Halcyon Hemp / Cambell's Flowers



Halcyon Hemp

## **Halcyon Hemp, Preliminary Study**

**Experiment:** Does Hydrogen infused water via HyFrontiers Technologies HyGrO system increase the longevity of cut flowers?

**Hypothesis:** We believe adding hydrogen to the water via the HyGrO System will extend the shelf life of cut flowers.

**Procedure:** Halcyon Hemp conducted a simple preliminary study on the effects of HyGrO water on the longevity of cut flowers. Two vases were filled, one with regular tap water and one with HyGrO water. The water was never changed and pictures were taken to document the results.

**Materials:** The materials used were tap water, hydrogen infused water from HyFrontier Technologies HyGrO system, stock roses, carnations and gladiolas provided by Campbell's Flowers in Pueblo Colorado.

## Halycon Hemp Study Days 0 - 5

### Day 0



Both vases of flowers looked identical. The vases were filled to equal water levels, one with tap water and the other with hydrogen infused water from HyFrontier Technologies HyGro system.

### Day 3



On day 3 the first visual differences began to emerge. The bloom of the carnations and roses for the HyGrO sample were not as far developed. The gladiolas in the control vase began to degrade while those in the HyGrO vase still appeared to be healthy. The water in the control sample appeared cloudy while the HyGrO water remained clear.

### Day 5



The gladiolas on both vases had decayed. The rose in the control group began to lose petals, while the HyGrO rose was still intact and healthy. The carnations in the control vase were in full blossom while the HyGrO carnations had just begun to open in bloom. The HyGrO flowers appeared to be uptaking more water and the HyGrO water was clear while the water in the control vase was cloudy.

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## Halycon Hemp Study Days 7 - 21



### Day 7

On Day 7 the HyGrO rose was still healthy while the control rose had completely decayed. Carnations were in full bloom in the control vase and were approximately halfbloom in the HyGrO vase. Infused water in the HyGrO vase remained clear while control water was cloudy.



### Day 14

All flowers in control vase had decayed, including the carnations. Carnations in the HyGrO vase were healthy and in full bloom.



### Day 21

Carnations in the vase with the HyGrO infused water began to decay.

## **Halycon Hemp Study Conclusion**

**Conclusion:** From the results, photos and observations made in this study it appears that by using our HyGrO System's infused water, the shelf life of cut flowers is increased, and bloom rate is reduced. This could reduce waste in the floral industry.

### **Statement's From Halcyon Hemp / Campbell's Flowers**

"It was a great time watching this experiment run its course. It looks like the HyGrO system really extends the shelf life of flowers".

Travis Nelson - Managing Partner of Halcyon Hemp LTD

"We definitely noticed better post harvest quality, as well as extended shelf life on the cut flowers treated with the HyGrO system" .

Zack Stanifer - Owner of Campbell's Flowers