




| Analysis Report For: | | | | Copy To: | | |
|----------------------------------------------------------------------------------|------------|--------------|--------------|------------------|--------------|--------|
|  | | | | | | |
| LAB ID: | SAMPLE ID: | REPORT DATE: | DATE SAMPLED | SAMPLE TYPE | INTENDED USE | COUNTY |
| W22365 | WPLE210102 | 1/11/2021 | 1/2/2021 | Irrigation Water | Greenhouse | |

**WATER ANALYSIS
Irrigation Water Report (WH02)**

| Analysis | Result | Units | Level of concern |
|--------------------------------------------|--------|----------|---------------------------------------------------------------|
| pH | 8.0 | - | Below 5.0 or above 7.0 |
| Total Alkalinity as CaCO ₃ | 291.5 | mg/L | Below 30 or above 100 |
| Bicarbonate (HCO ₃) Alkalinity | 355.7 | mg/L | - |
| Carbonate (CO ₃) Alkalinity | 0.0 | mg/L | - |
| Hardness as CaCO ₃ | 306.0 | mg/L | Below 50 or above 150 |
| Electrical Conductivity (EC) | 2.54 | mmhos/cm | Above 1.0 for plugs or above 1.5 for others |
| Total Dissolved Solids (TDS) | 1622.6 | mg/L | Above 640 for plugs/seedlings or above 960 for others |
| Nitrate-Nitrogen (NO ₃ -N) | 100.8 | mg/L | Consider in overall fertility program |
| Ammonium-Nitrogen (NH ₄ -N) | < 1.00 | mg/L | Consider in overall fertility program |
| Phosphorus (P) | 17.25 | mg/L | Above 5.0 may cause micronutrient deficiencies |
| Potassium (K) | 479.31 | mg/L | Consider in overall fertility program |
| Calcium (Ca) | 58.70 | mg/L | Below 40 or above 100 |
| Magnesium (Mg) | 38.73 | mg/L | Below 25 |
| Iron (Fe) | 0.51 | mg/L | Above 0.30 for micro-irrigation or above 5 for plant toxicity |
| Manganese (Mn) | 0.04 | mg/L | Above 0.05 for micro-irrigation or above 2 for plant toxicity |
| Zinc (Zn) | 0.14 | mg/L | Above 0.30 toxic to most plants |
| Copper (Cu) | 0.75 | mg/L | Above 0.20 toxic to some plants |
| Boron (B) | 0.25 | mg/L | Above 0.50 for sensitive plants, above 2 for most plants |
| Molybdenum (Mo) | 0.020 | mg/L | Above 0.05 toxic to some plants |
| Sulfur (S) | 38.8 | mg/L | Below 10 may require addition of S fertilizer |
| Chloride (Cl) | 257.11 | mg/L | Above 30 for sensitive plants, above 100 for most plants |
| Sodium (Na) | 110.90 | mg/L | Above 50 |
| Sodium Adsorption Ratio (SAR) | 2.76 | - | Above 2.0 |

The above results and interpretations are applicable to raw irrigation water used for greenhouse or high tunnel production only. Level of concern for each parameter are general; some plants have water quality tolerances that differ from those listed here. A brief description of each parameter is provided on the back of this report. Additional information about irrigation water quality may be found on the Penn State Water Quality Extension website, <http://extension.psu.edu/natural-resources/water/agriculture>