Waypoint ANALYTICAL

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

IRRIGATION WATER

Send to :	Project :	Report No : **16-018-0256**
		Cust No : 09839
		Date Printed : 01/19/2016
		Date Received : 01/18/2016
		Page : 1 of 3
		Lab Number : **96735**

Sample Id : **Chem Room Water**

CATIONS		mg/L	meq/L
Sodium	Na	174	7.57
Calcium	Ca	2	0.10
Magnesium	Mg	0	0.00
Potassium	K	1	0.03
Ammonium	NH_4	1	0.07
	NH_4 - N	1	
SUM OF CATIONS			**7.77**

ANIONS		mg/L	meq/L
Chloride	Cl	69	1.94
Sulfate	SO_4	1	0.02
	S	0	
Bicarbonate	HCO_3	338	5.54
Carbonate	CO_3	0	
Nitrate	NO_3	0	0.00
	NO_3 - N	0	
Phosphate	PO_4	1	0.03
	P	0	
SUM OF ANIONS			**7.53**

Hydrogen Ion Activity	pH	7.5	
Equilibrium Reaction	pHc	7.20	
Electrical Conductivity	ECw	0.73	dS/m
Total Dissolved Solids	TDS	467	mg/L
Adj Na Adsorption Ratio	SARadj	30.90	
Sodium Adsorption Ratio	SAR	33.85	
Hardness		5.10	ppm

Copper	Cu	0	mg/L
Zinc	Zn	0	mg/L
Manganese	Mn	0.02	mg/L
Iron	Fe	0.01	mg/L
Boron	B	0.37	mg/L
Fluoride	F		
Aluminum	Al	0.03	mg/L
Molybdenum	Mo	0	mg/L

mg/L = parts per million parts water meq/L - milliequivalents per liter
Hardness is determined from calculations using the calcium and magnesium concentrations in the water.
TDS calculated by ECw * 640

Waypoint ANALYTICAL

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

IRRIGATION WATER

Send to :	Project :	Report No : **16-018-0256**
		Cust No : 09839
		Date Printed : 01/19/2016
		Date Received : 01/18/2016
		Page : 2 of 3
		Lab Number : **96735**

Sample Id : **Chem Room Water**

WATER ANALYSIS INTERPRETATION, AGRICULTURAL

Potential Problem	Units	Test Result	Degree of Restriction on Use – Criteria			Graphical Results		
			None	Slight to Moderate	Severe	None	Slight to Moderate	Severe
Salinity								
ECw[1]	dS/m	0.73	< 0.7	0.7 - 3	> 3			
Specific Ion Toxicity								
Sodium (Na)[1]								
Surface irrigation	SARadj	30.90	< 3	3 - 9	> 9			
Sprinkler irrigation[2]	meq/L	7.57	< 3	3 - 6	> 6			
Chloride (Cl)[1]								
Surface irrigation	meq/L	1.94	< 4	4 - 10	> 10			
Sprinkler irrigation[2]	meq/L	1.94	< 3	3 - 5	> 5			
Boron (B)[1]	mg/L	0.37	< 0.7	0.7 - 3	> 3			
Fluoride (F)[1]			< 1	1 - 5	> 5			
Clogging of Drip Systems or Unsightly Residues								
Iron (Fe)[3]	mg/L	0.01	< 0.3	0.3 - 1.5	> 1.5			
Manganese (Mn)[3]	mg/L	0.02	< 0.2	0.2 - 1.5	> 1.5			
pH - pHc[4]		0.30	<= 0	> 0				
Reduced Water Infiltration[5] **(Ratio based on adjSAR / ECw)**		42.33	< 4	4 - 10	> 10			
Alkalinity								
Bicarbonate (HCO_3) + Carbonate (CO_3)[6]	meq/L		< 2	2 - 8.5	> 8.5			
Potential Low Nutrient Issues (Soilless media)[7]								
Sulfate	mg/L	1	> 48	48 - 20	< 20			
Magnesium	mg/L	0	> 10	10 - 4	< 4			
Boron	mg/L	0.37	> 0.3	0.3 - 0.05	< 0.05			

1. Crop tolerance to salinity, sodium, chloride, boron and fluoride varies widely. Most tree crops are sensitive to sodium and chloride while many annual crops are not. Soil conditions, irrigation method and climate must be considered.
2. Leaf burn from foliar and root absorption will be enhanced under conditions of : low humidity, high temperature and high air movement .
3. Elevated iron in combination with sulfides or tannins can result in bacterial slimes that can clog drip systems. Removal of iron and manganese often involves oxidation (aeration or chlorination) followed by filtering.
4. Positive pH - pHc (saturation index) values indicate the potential for calcium and magnesium carbonate precipitates that might impair efficiency of irrigation systems with small orificed parts and/or may leave unsightly lime deposits on leaves. Problems can be reduced by mineral acid addition.
5. Infiltration problems are most likely when water with low ECw and/or high SAR adj. is used on mineral soils containing some silt and clay. Evaluation of infiltration problems should include analysis of both irrigation water and soil-water extracts. Treatment may involve injecting gypsum into the water or applying gypsum to the soil surface.
6. Bicarbonate when excessive may result in difficulty in controlling soil pH and may impair root assimilation of minor elements.
7. Sulfur, magnesium and /or boron may become limiting if not supplied by soil or fertilizer. Use soil and leaf analysis to confirm need.

Comments :

Waypoint ANALYTICAL

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

IRRIGATION WATER

Send to :	Project	Report No : **16-018-0256**
		Cust No : 09839
		Date Printed : 01/19/2016
		Date Received : 01/18/2016
		Page : 3 of 3
		Lab Number : **96735**

Sample Id : **Chem Room Water**

SPRAY WATER ANALYSIS INTERPRETATION

Potential Problem	pH	Hardness	Iron	Carbonate	Bicarbonate	Sodium	Chloride
Test Result	7.5	5.10	0.01	0	338	174	69
Units	s.u	mg/L	mg/L		mg/L	mg/L	mg/L
Severe	> 7.9	> 180	> 1.5	> 8.5	> 8.5	> 6	> 5
Slight to Moderate	5.0 - 5.7;7.1 - 7.9	60 - 180	0.3 - 1.5	2 - 8.5	2 - 8.5	3 - 6	3 - 5
None	5.8 - 7	< 60	< 0.3	< 2	< 2	< 3	< 3

One or more potential problems are moderate to severe. Consider the use of a water conditioner or a different water source.

For insecticide/fungicide active ingredients that are subject to decomposition by alkaline hydrolysis, buffer addition is recommended when pH exceeds 7.0. Optimum range is pH between 3.0 and 5.0 depending on active ingredient.

For glyphosate, buffering is recommended when pH exceeds 5.0. Optimum range is pH between 3.0 and 4.5.

Bicarbonates at this level indicate potential for negative impacts on glyphosate, clethodim, ACHIEVE, and sethoxydim.