

IRRIGATION WATER

Send to :	Project :	Report No : 17-268-0200
		Cust No : 00000
		Date Printed : 10/02/2017
		Date Received : 09/25/2017
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		Lab Number : 89579

Sample Id : **Irrigation Water**

CATIONS		mg/L	meq/L
Sodium	Na	15.900	0.69
Calcium	Ca	87.000	4.34
Magnesium	Mg	27.000	2.22
Potassium	K	2.920	0.07
Ammonium	NH ₄	0	0.01
	NH ₄ - N	0.100	
SUM OF CATIONS			7.33

ANIONS		mg/L	meq/L
Chloride	Cl	34.00	0.96
Sulfate	SO ₄	70.600	1.47
	S	24	
Bicarbonate	HCO ₃	256	4.20
Carbonate	CO ₃	17	0.28
Nitrate	NO ₃	0	0.00
	NO ₃ - N	0.10	
Phosphate	PO ₄	1	0.03
	P	0.197	
SUM OF ANIONS			6.94

Hydrogen Ion Activity	pH	8.0
Equilibrium Reaction	pHc	6.30
Electrical Conductivity	ECw	0.735 dS/m
Total Dissolved Solids	TDS	470 mg/L
Adj Na Adsorption Ratio	SARadj	0.47
Sodium Adsorption Ratio	SAR	0.38
Hardness		328 ppm

Copper	Cu	0.005 mg/L
Zinc	Zn	0.050 mg/L
Manganese	Mn	0.010 mg/L
Iron	Fe	0.100 mg/L
Boron	B	0.050 mg/L
Fluoride	F	
Aluminum	Al	0.100 mg/L
Molybdenum	Mo	0.019 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

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WATER ANALYSIS INTERPRETATION, AGRICULTURAL

Potential Problem	Units	Test Result	Degree of Restriction on Use			Graphical Results		
			None	Slight to Moderate	Severe	None	Slight to Moderate	Severe
Salinity ECw ¹	dS/m	0.735	< 0.7	0.7 - 3	> 3			
Specific Ion Toxicity								
Sodium (Na)¹								
Surface irrigation	SARadj	0.47	< 3	3 - 9	> 9			
Sprinkler irrigation ²	meq/L	0.69	< 3	3 - 6	> 6			
Chloride (Cl)¹								
Surface irrigation	meq/L	0.96	< 4	4 - 10	> 10			
Sprinkler irrigation ²	meq/L	0.96	< 3	3 - 5	> 5			
Boron (B)¹	mg/L	0.050	< 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	0.100	< 0.3	0.3 - 1.5	> 1.5			
Manganese (Mn)³	mg/L	0.010	< 0.2	0.2 - 1.5	> 1.5			
pH - pHc⁴		1.70	<= 0	> 0				
Reduced Water Infiltration⁵ (Ratio based on adjSAR / ECw)		0.64	< 4	4 - 10	> 10			
Alkalinity								
Bicarbonate (HCO₃) + Carbonate (CO₃)⁶	meq/L	4.48	< 2	2 - 8.5	> 8.5			
Potential Low Nutrient Issues (Soilless media)⁷								
Sulfate	mg/L	70.600	> 48	48 - 20	< 20			
Magnesium	mg/L	27.000	> 10	10 - 4	< 4			
Boron	mg/L	0.050	> 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 :