



# Getting it Right – Good Salinity Management Practices



Know the basics!

Soils

Drainage

Irrigation Water

Desirable Crops

# Identifying salinity









# Identifying salinity





# Identifying salinity



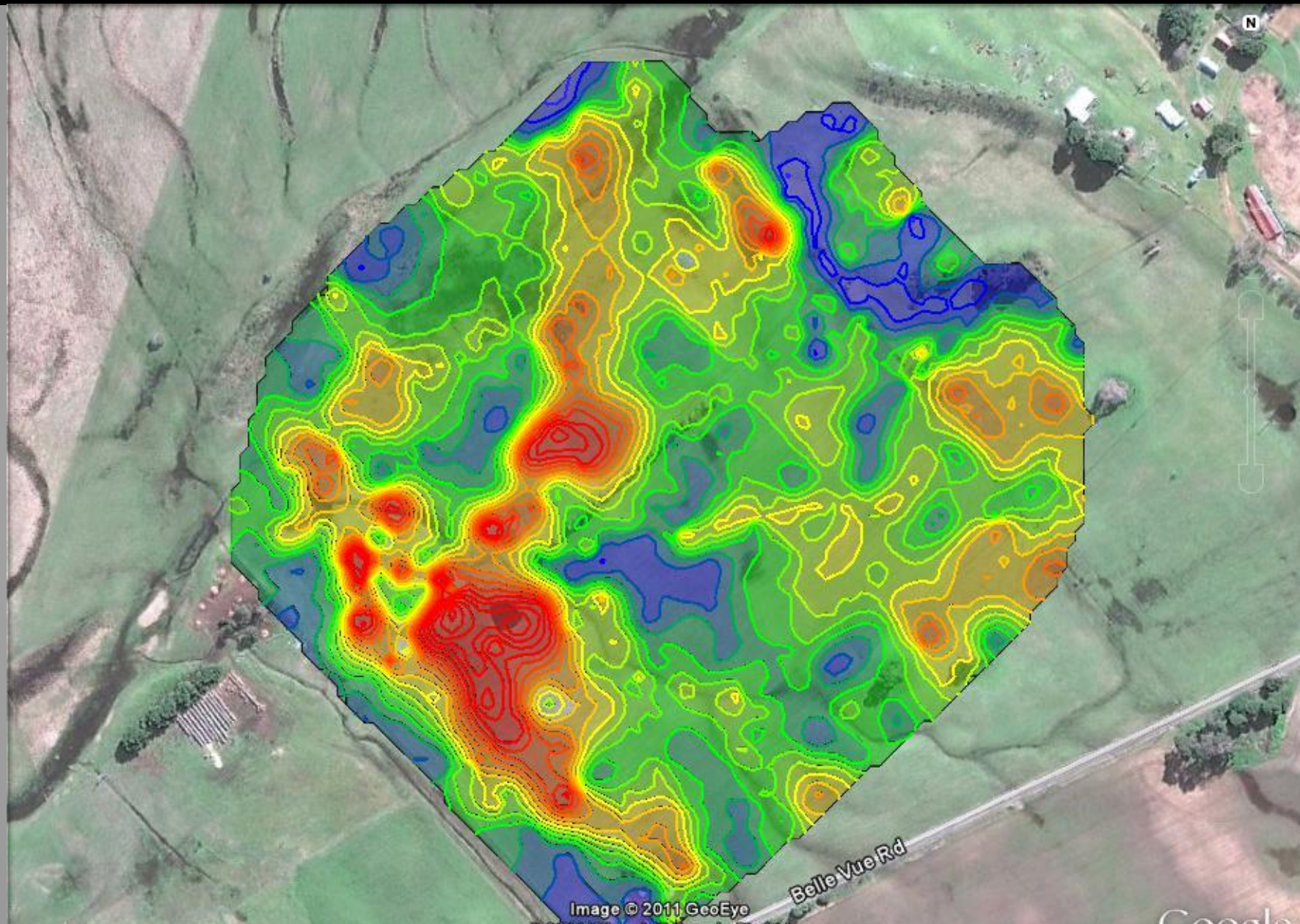




Prevention is better than cure!

Measure salinity – to properly manage





# EM38

## Apparent Conductivity mapping





Soil testing

$EC_{1:5}$

Soil texture

Conversion Factor

$EC_{se}$

Tolerance tables



# Laboratory testing & Plant nutrient analysis





# Surface and groundwater testing





# Drainage









# Satellite Imagery



	25 <sup>th</sup>	27 <sup>th</sup>	30 <sup>th</sup>	5 <sup>th</sup>	7 <sup>th</sup>	10 <sup>th</sup>	12 <sup>th</sup>
Clouds	0%	99%	16%	47%	15%	59%	6%
NDVI	NDVI	NDVI	NDVI	NDVI	NDVI	NDVI	NDVI
NDVI-R	NDVI-R	NDVI-R	NDVI-R	NDVI-R	NDVI-R	NDVI-R	NDVI-R



# Know your units of measurement

Commonly used units include:

uS/cm, dS/m, mS/cm  
and ppm.

$$1\text{dS/m} = 1\text{mS/cm} = 100\text{mS/m} = 1000\text{uS/cm} = 640\text{ppm}$$



# Irrigation Water and Soil Salinity Classes

Salinity Level	Irrigation Water (EC <sub>w</sub> ) dS/m	Soil (EC <sub>se</sub> ) dS/m
Low	0.0 – 0.28	0.0 – 2.0
Medium	0.28 – 0.8	2.0 – 6.0
High	0.8 – 2.3	6.0 – 10.0
Very High	2.3 – 5.5	10.0 – 15.0
Extreme	>5.5	>15.0



Common name	Tolerance to salinity	Average root zone soil salinity threshold (EC <sub>se</sub> [dS/m])	EC <sub>se</sub> threshold for crop losses (dS/m)		
			10%	25%	50%
Asparagus	tolerant	4.1	9.1	16.6	29.1
Artichoke	moderately tolerant	6.1	7.0	8.3	10.4
Beet, garden	moderately tolerant	4.0	5.1	6.8	9.6
Rosemary	moderately tolerant	4.5	5.8	7.4	10.0
Zucchini	mod. tolerant	4.7	2.6	4.2	6.8
Broadbean	mod. sensitive	1.5	3.9	5.5	8.2
Broccoli	mod. sensitive	2.8	2.8	4.4	7.0
Cabbage	mod. sensitive	1.8	2.2	3.3	5.1
Capsicum	mod. sensitive	1.5	3.4	5.8	9.9
Cauliflower	mod. sensitive	2.5	3.3	4.4	6.3
Celery	mod. sensitive	1.8	2.5	4.7	8.3
Cucumber	mod. sensitive	2.5	2.5	4.7	8.3
Eggplant	mod. sensitive	1.1	3.2	5.1	7.3
Kale	mod. sensitive	6.5	2.1	4.1	8.1
Lettuce	mod. sensitive*	1.3	2.3	5.8	8.1
Onion (seed)	mod. sensitive	1.0	4.3	3.8	5.9
Pea	mod. sensitive	2.5	2.5	3.1	5.1
Potato	mod. sensitive	1.7	2.0	5.3	8.6
Radish	mod. sensitive	1.2	3.3	5.3	8.6
Spinach	mod. sensitive	2.0	3.8	4.8	6.3
Squash	mod. sensitive	2.5	2.5	3.8	5.9
Squash, scallop	mod. sensitive	3.2	2.5	3.8	6.0
Sweet corn	mod. sensitive	1.7	2.4	5.0	7.6
Sweet potato	mod. sensitive	1.5	3.5	3.7	6.5
Tomato	mod. sensitive	2.5	2.0	2.3	3.6
Turnip	sensitive	0.9	1.5	2.8	4.1
Bean	sensitive	1.0	1.7	2.8	4.1
Carrot	sensitive	1.0	1.8	2.8	4.1
Onion (bulb)	sensitive	1.2	1.8	2.8	4.1

Common name	Tolerance to salinity	Average root zone soil salinity threshold (EC <sub>se</sub> [dS/m])	EC <sub>w</sub> threshold for crops growing in			EC <sub>w</sub> threshold for crop losses (dS/m)		
			sand	loam	clay	10%	25%	50%
Asparagus	tolerant	4.1	5.2	3	1.7			
Artichoke	mod. tolerant	6.1						
Beet, garden	mod. tolerant	4.0	6.5	3.7	2.1	3.4	4.5	6.4
Rosemary	mod. tolerant	4.5	5.7	3.3	1.9			
Zucchini	mod. tolerant	4.5	7.3	4.2	2.4			
Broadbean	mod. sensitive	1.5	3.3	1.9	1.1	1.8	2.0	4.5
Broccoli	mod. sensitive	2.8	4.9	2.8	1.6	2.6	3.7	5.5
Cabbage	mod. sensitive	1.8	3.5	2	1.2	1.9	2.9	4.6
Capsicum	mod. sensitive	1.5	2.8	1.6	0.9	1.5	2.2	3.4
Cauliflower	mod. sensitive	2.5	3.2	1.8	1.1			
Celery	mod. sensitive	1.8	4.3	2.5	1.4	2.3	3.9	6.6
Cucumber	mod. sensitive	2.5	4.2	2.4	1.4	2.2	2.9	4.2
Eggplant	mod. sensitive*	1.1	3.2	1.8	1.1			
Kale	mod. sensitive	6.5	8.2	4.7	2.7			
Lettuce	mod. sensitive	1.3	2.7	1.5	0.9	1.4	2.1	3.4
Onion (seed)	mod. sensitive	1.0						
Pea	mod. sensitive	2.5	3.2	1.8	1.1			
Potato	mod. sensitive	1.7	3.2	1.8	1.1			
Radish	mod. sensitive	1.2	3.2	1.8	1.1			
Spinach	mod. sensitive	2.0	1.5	0.9	0.5	1.7	2.5	3.9
Squash	mod. sensitive	2.5	4.2	2.4	1.4	1.3	2.1	3.4
Squash, scallop	mod. sensitive	3.2	3.2	1.8	1.1	2.2	3.5	5.7
Sweet corn	mod. sensitive	1.7	4.8	2.7	1.6			
Sweet potato	mod. sensitive	1.5	2.2	1.2	0.7	2.6	3.2	4.2
Tomato	mod. sensitive	2.5	3	1.7	1	1.7	2.5	3.9
Turnip	sensitive	0.9	2.5	2	1.2	1.6	2.5	4.0
Bean	sensitive	1.0	1.9	1.4	0.8	2.3	3.4	5.0
Carrot	sensitive	1.0	2.2	1.2	0.7	1.0	2.5	4.3
Onion (bulb)	sensitive	1.2	2.3	1.3	0.8	1.1	1.9	3.0

# Tolerance Tables





## Key Points

Test regularly – conditions are  
subject to change

Recycled water – know what  
nutrients you are putting on

Soils may accumulate  
salts over time

Understand crop tolerances

Talk with your agronomist



# Starting out

Irrigation – scheduling

VRI – apply water where needed

Enough to flush but not enough to create  
recharge

Avoid irrigation on hot windy days