EEFECTS OF IRRIGATION WITH SALINE GROUNDWATER ON GROWTH INDICES AND PHYSIOLOGICAL TRAITS ON MELON IN NORTH-WEST CHINA

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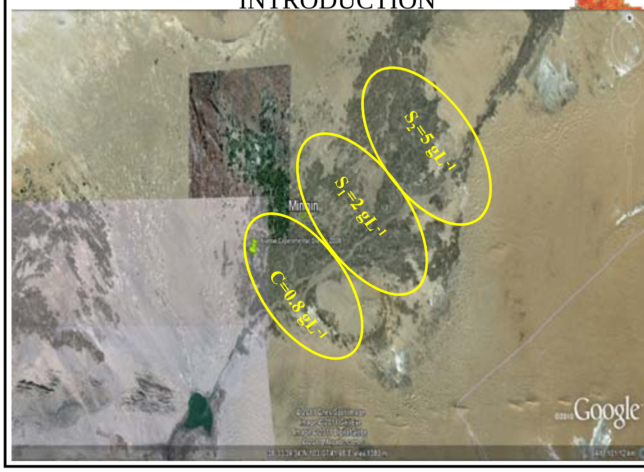
INTRODUCTION



AIM

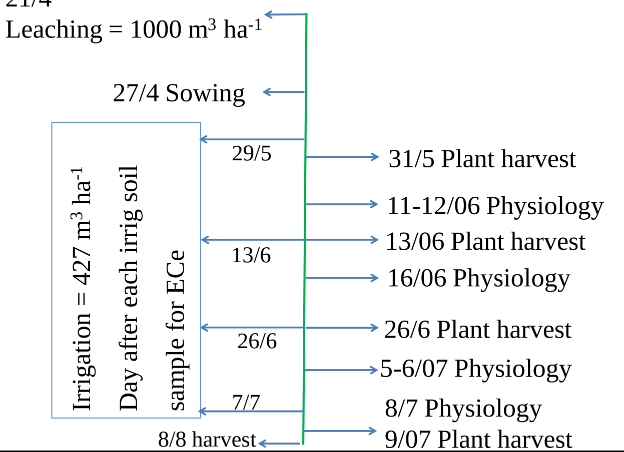
To evaluate with short and long duration measurements the effects of saline water irrigation on plant growth, physiological and yield response of a cultivar of Melon.

FIELD EXPERIMENT

The following observations were collected during the trial on *Cucumis melo cv* Huanghemi :

- Evaluation of the soil electrical conductivity in saturated paste (ECe)
- Evaluation of the Net Assimilation Rate and leaf conductance to water vapour
- Growth analysis of parameters that characterize the direct response to salinity; RGR; ULR; LAR; LA
- Ions content in different plant organs; leaves; stems

MATERIAL AND METHODS

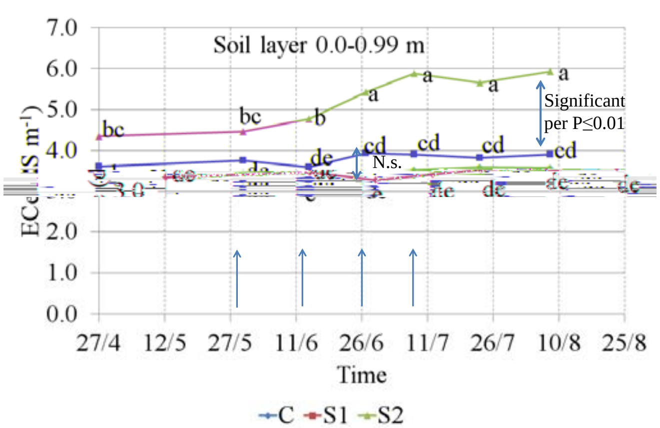


The Treatment under study were:

C = 0.8 g L^{-1}; ECw= 1.00 dS m^{-1}

S_1 = 2 g L^{-1}; ECw= 2.6 dS m^{-1}

S_2 = 5 g L^{-1}; ECw = 7.03 dS m^{-1}



337 re 34 -8.34 -0 63.96 571.08 Tm 0 Tc (337 re 34

131

27.1**

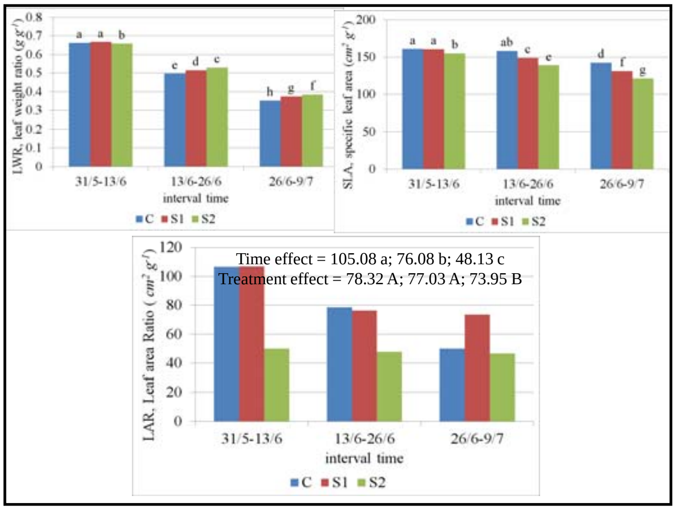
27.1

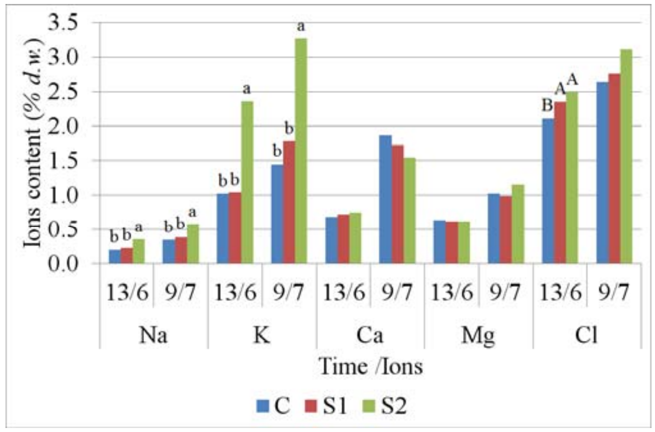
17.8

Net assimilation rate (μmol CO_2 m^{-2} s^{-1})

	Tre	11/6	12/6	16/6	5/7	6/7	8/7
	C	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	S_1	20.3 b	19.8 a	7.8	19.4 a	19.7	20.0 b
	S_2	26.6 a	13.8 ab	12.5	17.4 ab	19.8	24.3 a
	Av	25.0	15.3	10.5	16.8	18.1	22.0
	P	**	**	ns	**	ns	**
12.45-13.30	C	19.0	13.2	16.4	6.4	18.2	23.6
	S_1	21.2	17.8	15.5	10.5	24.0	29.5
	S_2	20.5	16.2	17.4	11.6	21.1	28.3
	Av	20.3	15.7	16.4	9.5	21.1	27.1
	P	ns	ns	ns	ns	ns	ns
17.45-18.30	C	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	S_1	6.2	--	8.9	10.9	14.1 a	6.9
	S_2	13.0	--	9.5	6.9	4.2 c	7.0
	Av	8.6	--	10.2	7.7	9.2	6.5
	P	ns	--	ns	ns	**	ns

Leaf conductance to water vapour (mmol H_2





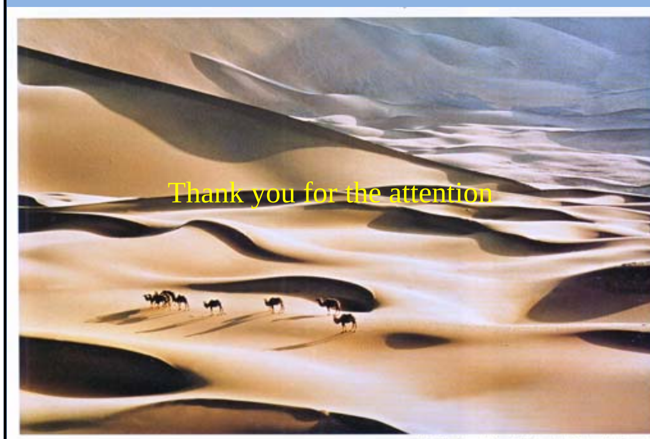
CONCLUSION

❖The increase of salinity (Ece) determines a significant reduction of LA and W.

❖Both the short term photosynthetic assimilation rate and the long term growth analysis indicated no significant effect of salinity on NAR and ULR

❖ The increase of salinity determines an increase of LWR, while the SLA decreased.

❖The plant activates a mechanism of Na allocation in the basal part and a preferential flow of K in the upper part to compensate the ion imbalance and to control the gas exchange.



Badain Jaran Desert (photoed by Geoge Stainmetz)