

Olsen's Agricultural Laboratory, Inc.

210 East 1st St. / PO Box 370 / McCook, Nebraska 69001

Office: 308-345-3670 / FAX: 308-345-7880

www.olsenlab.com



Salinity Hazard of Irrigation Water for Various Crops

Yield Decrement Expected from EC_w*
Value of Irrigation Water Shown in Table

Crop	0%	10%	25%	50%	Maximum EC _e **
Alfalfa	1.3	2.2	3.6	5.9	15.5
Barley***	5.3	6.7	8.7	12.0	28
Bermuda grass	4.6	5.7	7.2	9.8	22.5
Clover, alsike, & ladino	1.0	1.6	2.4	3.8	10
Corn	1.1	1.7	2.5	3.9	10
Cotton	5.1	6.4	8.4	12.0	27
Crested wheatgrass	2.3	4.0	6.5	11.0	28.5
Field bean	0.7	1.0	1.5	2.4	6.5
Flax	1.1	1.7	2.5	3.9	10
Meadow foxtail	1.0	1.7	2.7	4.5	12
Onion	0.8	1.2	1.8	2.9	7.5
Orchard grass	1.0	2.1	3.7	6.4	17.5
Perennial ryegrass	3.7	4.6	5.9	8.1	19
Potato	1.1	1.7	2.5	3.9	10
Rice	2.0	2.6	3.4	4.8	11.5
Safflower	3.5	4.1	5.0	6.6	14.5
Sorghum	2.7	3.4	4.8	7.2	18
Soybean	3.3	3.7	4.2	5.0	10
Sudan grass	1.9	3.4	5.7	9.6	26
Sugar beet***	4.7	5.8	7.5	10.0	24
Tall fescue	2.6	3.9	5.7	8.9	23
Tall wheatgrass	5.0	6.6	9.0	13.0	31.5
Tomato	1.7	2.3	3.4	5.0	12.5
Trefoil, birdsfoot	3.3	4.0	5.0	6.7	15
Vetch	2.0	2.6	3.5	5.0	12
Wheat***	4.0	4.9	6.4	8.7	20
Wheatgrass	5.0	6.0	7.4	9.8	22

*EC_w = Electrical conductivity of irrigation water in mmhos/cm at 25°C. A 15 – 25% leaching fraction is assumed. The average salinity of soil water taken up by the crop is assumed to be about three times that of the irrigation water applied and about two times that of the soil saturation extract (EC_e).

**Maximum EC_e = Maximum electrical conductivity of the soil extract at which crop growth ceases due to unavailability of soil water.

***Barley, wheat, and sugar beets are less tolerant during germination and seeding stage.