
KS652.1302 State supplement - quality of water supply

(a) General information

As a general rule, to reduce toxic salt in each 1 foot of soil:

- 50 percent of the salt can be removed by leaching with 6 inches of water
- 80 percent of the salt can be removed by leaching with 18 inches of water
- 90 percent of the salt can be removed by leaching with 24 inches of water

For sodic soils, add soil amendments at a rate based on laboratory analysis. For amounts of gypsum and sulfur required to replace indicated amounts or exchangeable sodium, see [Table 6 on page 49 of Chapter 3 in the U.S. Department of Agriculture \(USDA\) Agricultural Handbook No. 60](#). Incorporate low sodium amendment into the topsoil before leaching is started. Some amendments can be dissolved and applied in irrigation water during the leaching period.

Subsurface drainage must be adequate for water to move downward and out of the soil profile.

Take periodic tests to determine the level of salinity. The required level is reached when the electrical conductivity or a saturation extract is at the level required for satisfactory growth of the desired crop.

Prior to leaching soils that have been compacted, it may be desirable to chisel or subsoil so greater and more rapid water penetration can be achieved.

Kansas State Research and Extension Publication MF-1022, "Management of Saline and Sodic Soils," discusses general information pertaining to saline and sodic soils in Kansas. It is available at <http://www.oznet.ksu.edu/library/CRPSL2/mf1022.pdf>.

(b) Ponding method

Level land as needed for uniform ponding and surface control. Construct dikes or contour border to obtain uniform ponding.

Alternate wetting and drying may be more efficient than continuous wetting on some soils.

(c) Sprinkler method

Sprinkling provides better water control than ponding, giving adequate salt reduction with less water and allows for more uniform salt reduction.

Design sprinkler systems for a coefficient of uniformity of 80 percent or greater. The more uniformly water is applied, the better the leaching. In very windy weather, stop.

The application rates should be less than field intake rates in order to avoid ponding. On some soils, intermittent sprinkling may be necessary. If ponding starts, shut off the sprinkler system for at least 24 hours.

More water must be applied than evaporates. Since evaporation rates are greater in the daytime during hot weather, it may be advantageous to sprinkle at night.

(d) Special considerations

In conjunction with this practice, a good irrigation water management program is needed to maintain a favorable salt balance.

Avoid tillage when the soil is wet and any other tillage or unnecessary traffic that compacts the soil.

Maintain soil productivity and tilth by using good management practices such as a conservation cropping system, proper water use, subsoiling, crop residue use, green manuring, and mulching.

After leaching, a good practice is to use barley or other salt-tolerant green manure crop to help rebuild organic content of the soil and improve tilth. This will provide further leaching, test uniformity of leaching results, and provide some income.