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Water Quality

Quality of irrigation water is determined by its salt and suspended material content. The most important salt factors are total concentration and type of salts. The principal salts include the cations calcium, magnesium and sodium and the anions carbonate, bicarbonate, sulfate and chloride. The presence of toxic ions such as borate, usually present in low concentrations, is a factor in some areas of the country, but yet is not a factor in North Dakota.

Salt concentration in the soil solution influences plant growth and soil physical conditions. Undesirable salt accumulation may result from the use of irrigation water containing high salt concentrations. Periodic leaching is necessary to maintain the concentration of salt in the soil at a level that will not adversely affect plant growth. Information regarding infiltration rate, permeability, and concentration and type of salts in irrigation water are needed to plan management practices.

Summary

Due to the capital required to develop irrigation, it is necessary for the farm operator to consider all the factors that will influence his decision.

This paper has discussed the factors relating to soil, drainage, topography, and quality of irri-

gation water. The farm operator should have a complete inventory of these factors when considering irrigation.

County agents, Extension Service and Experiment Station specialists, and personnel from the Soil Conservation Service can assist in providing the factors.

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