

Combining Subsurface Drainage and Windbreaks to Control Dryland Salinity

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Abstract. The reclamation of salinized soil involves lowering ground water levels, draining the vadose zone, and leaching the salts from the root zone. Plastic drain tubing placed 1.5 to 1.8m below the land surface can lower watertables and drain phreatic water, but irrigation is usually required to leach the offending salts. The leaching process in non-irrigated drylands depends on natural precipitation. Rows of tall wheatgrass, *Thinopyrum ponticum* (Podp.) Lui & Want, (1.2 m mean height) spaced on 15.2-m centres across saline fields can retain blowing snow, augment water for leaching salts, and moderate evapotranspiration when grown in conjunction with subsurface drainage. The mean salinity of saturated soil paste extracts from sets of soil samples taken every fall from such a site in southwestern Saskatchewan averaged 14.1 dS m⁻¹ during 1985-90 before the drainage was installed, 13.0 dS m⁻¹ for 1991-92 after drainage but before the grass windbreaks became established, and 9.6 dS m⁻¹ for 1993-98 with both drainage and windbreaks in place.

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