



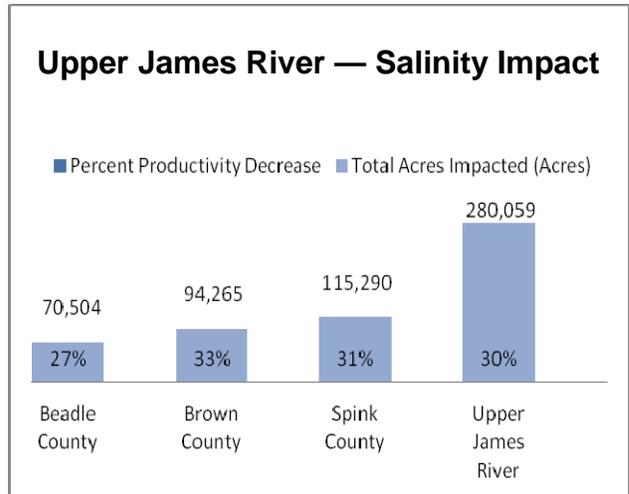
SD-FS-81
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Economic Impact of Saline Soils in Upper James River

Potential Economic Impact

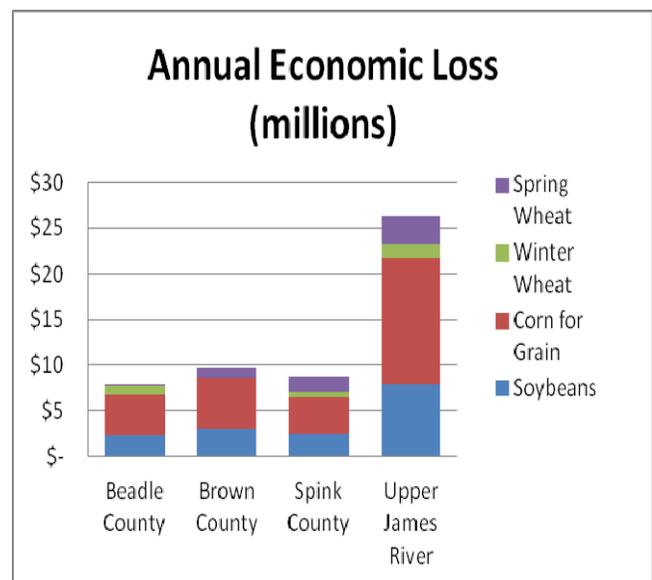
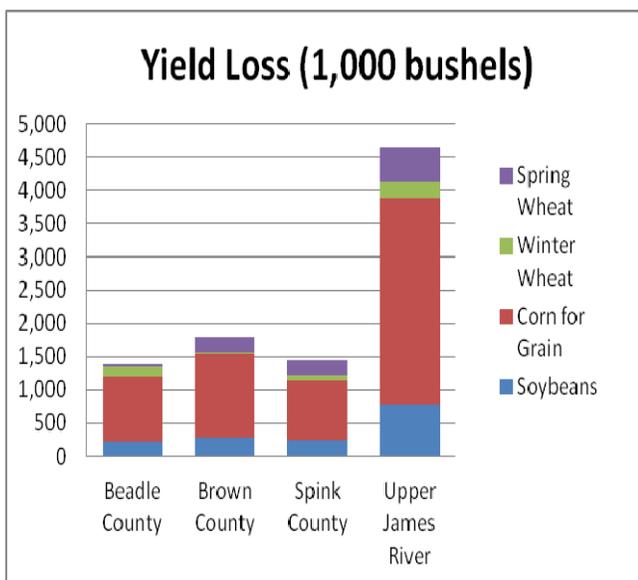
Soil salinity has become a major concern for counties of the upper James River watershed. Recent weather patterns and changes in land use have contributed to the severity of salt impacted soils. Soil salinity impacts crop yields by interfering with plant nutrient and water uptake. The actual level of production loss depends on the amount and type of salts in the profile, which can be measured by Electronic Conductivity (EC). To estimate the potential economic impact in the upper James River, soils and cropping patterns of the three top counties in the watershed have been analyzed; Brown, Spink and Beadle Counties. The total economic impact is influenced in two ways:

- Direct yield impact. Crop production losses due to soils with high saline levels (EC greater than 4).
- Long-term land values. County land valuations in South Dakota are based on soil productivity. As crop yields are negatively impacted due to soil salinity, the long term impact may result in lower land valuations on these areas.



For this analysis, only the direct yield impact is being estimated. The total impacted area is being estimated using existing soils information from NRCS soils databases. Soil map units with one or more components with an EC of 4 or more are more likely to be susceptible to salinity issues on cropland use. The total acres of saline impacted soils in the tri-county area is estimated at 280,059 with an average productivity decrease of 30 percent.

The economic impact of this productivity decrease can be estimated by applying the amount of bushels of lost production. This was accomplished by applying National Agricultural Statistical Service (NASS) crop yield data for the three counties for crop years 2007-2011. The four major crops raised in this area have been corn, soybeans, spring wheat and winter wheat. Based on the five-year state average crop price received, the total annual economic impact of yield losses in the tri-county area is estimated at \$26.2 million.



Potential Economic Impact of Soil Salinity in the Upper James River Valley

	Beadle County		Brown County		Spink County		Upper James River	
Total Acres Impacted	70,504		94,265		115,290		280,059	
Productivity Decrease	27%		33%		31%		30%	
Decreased Productivity	Bushels (1,000)	Value (million)	Bushels (1,000)	Value (million)	Bushels (1,000)	Value (million)	Bushels (1,000)	Value (million)
Soybeans	240	\$ 2.43	285	\$ 2.89	252	\$ 2.56	777	\$ 7.88
Corn for Grain	960	\$ 4.29	1,256	\$ 5.61	888	\$ 3.96	3,104	\$ 13.86
Winter Wheat	158	\$ 0.94	18	\$ 0.11	74	\$ 0.44	250	\$ 1.48
Spring Wheat	31	\$ 0.22	240	\$ 1.09	240	\$ 1.71	512	\$ 3.02
Average Annual Impact		\$ 7.88		\$ 9.70		\$ 8.66		\$ 26.24

For more information on treating saline soils, contact the Natural Resources Conservation Service (NRCS) at your local USDA Service Center.