

**LMFS-98-26**  
**“Analysis of Kyoto Protocol’s Impact on Agricultural Production  
in Minnesota, North Dakota, and South Dakota”**

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**PARTICIPANTS**

<u>Sponsor</u>	<u>Cost Share</u>
ND Industrial Commission	\$27,200
Total Project Costs	<hr/> <hr/> \$27,200

**Project Schedule - 12 Months**

Contract Date - 6/24/98

Start Date – 6/24/98

Completion Date 7/1/99

**Project Deliverables**

Status Report – 7/30/98 ✓

Status Report – 9/15/98 ✓

Final Report – 4/15/99 ✓

**OBJECTIVE / STATEMENT OF WORK**

The overall objective of this study is to determine the potential impact of the Kyoto Protocol on the agricultural sector in Minnesota, North Dakota and South Dakota. Specific objectives are:

- determine fuel and energy usage requirements for on-farm production of major crop and livestock enterprises in the states of Minnesota, North Dakota, and South Dakota;
- determine fuel requirements to transport agricultural production within the states of Minnesota, North Dakota, and South Dakota as well as fuel requirements to transport agricultural commodities for export to international boundaries;
- determine fuel and energy requirements for first-stage processing of major agricultural commodities in the states of Minnesota, North Dakota, and South Dakota; and
- estimate effect of implementing the Kyoto Accord in terms of higher fuel prices and input prices of fertilizer and chemicals on agricultural production at levels appropriate for the period 1995-1997.

## STATUS

The potential economic impact of the Kyoto Protocol on agricultural operations in Minnesota, North Dakota and South Dakota are estimated for carbon permit fees of \$100 and \$265 per metric ton of carbon. The average farmer in each of the states would experience a reduction in cash farm income on the 1996 production levels as follows:

States	<u>Carbon Permit Fees</u>	
	\$100/metric ton of C	\$265/metric ton of C
Minnesota	\$2,297	\$6,086
North Dakota	\$4,065	\$10,772
South Dakota	\$2,541	\$6,732

The size and number of farms impacts the value in each state. Minnesota with numerous “hobby” farms shows a much lower impact. Another means to assess the impacts is to evaluate representative operations as follows:

Representative Operation	<u>Carbon Permit Fees</u>	
	\$100/metric ton of C	\$265/metric ton of C
Southern MN Cash Crops	\$7,635	\$20,233
RR Valley Sugarbeets	\$11,545	\$30,595
Western ND Cow-Calf	\$6,065	\$16,071

The detail analysis is contained in four independent. One report summarizes the three state region and one report is presented for each individual state. In addition, a non-technical brochure summarizing the study is available, “Energy and Agriculture: The Kyoto Protocol and Its high Cost to Farmers”.