

# **Soil Fertility and Soil Conservation Contributions of Dr. Edward J. Deibert**

**Dave Franzen, Professor Soil Science, NDSU**

**and**

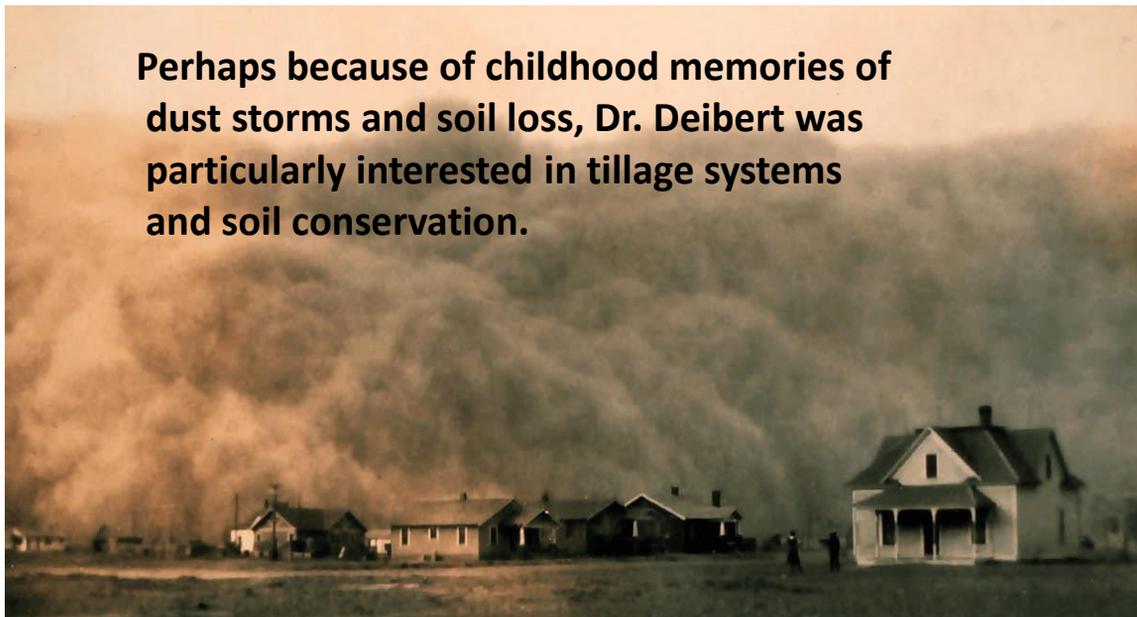
**Rod Utter, Research Associate, NDSU**

**Long-time Research Associate of E.J. Deibert**

**Dr. Edward J. Deibert passed away October 8, 2021.**



**He was born and lived near Bison, SD in 1939.  
He received degrees from SDSU and University of  
Nebraska before joining NDSU as Soil Scientist**



Approaching huge dust storm image from South Dakota, November 11, 1935

**NDSU and USDA-ARS scientists were slow to begin researching soil conservation/no-till methods of crop production.**

**However, early in Dr. Deibert's career he examined plow, sweep and no-till systems at Fargo (26 years)  
Casselton  
Williston  
Minot  
and Langdon**

**Typical of most NDSU researchers during his period of work, his publication record did not reflect the volume of work that he did.**

**However, his research continued to support his conviction that reduced tillage and no-till systems were important to North Dakota growers.**

**How many of you have used the tables and information in this publication?**

SF1751

# **Fertilizer Application**

## **With Small-grain Seed at Planting**

**These data come from Dr. Deibert/R. Utter's massive studies from multiple locations over years.**

**Table 1. Maximum nitrogen fertilizer rates with small-grain seed at planting based on planter spacing, planter type and seedbed utilization.**

Planter Type	Seed Spread (inches)	Planter Spacing							
		— 6 Inch —		— 7.5 Inch —		— 10 Inch —		— 12 Inch —	
		SU	lb N/Ac	SU	lb N/Ac	SU	lb N/Ac	SU	lb N/Ac
		%		%		%		%	
Double disc	1	17	20-30	13	19-28	10	17-23	8	15-20
Hoe	2	33	32-44	27	27-38	20	23-31	17	20-27
	3	50	44-58	40	37-48	30	30-40	25	26-34
Air seeder	4	66	56-72	53	46-58	40	37-48	33	32-42
	5	83	68-86	68	56-68	50	44-57	44	38-49
	6	100	80-100	80	66-79	60	51-55	50	44-56
	7			94	76-90	70	58-74	58	50-64
	8					80	66-83	67	56-71
	9					90	73-92	75	62-78
	10					100	80-100	83	68-86
	11							92	74-93
	12							100	80-100

SU = Seedbed utilized

**Table 2. Maximum nitrogen fertilizer rates with small-grain seed at planting based on soil texture and seeded utilization.**

Soil Texture	Particle Size			Percent of Seedbed Utilized		
				10-20	30-50	60-100
	Sand	Silt	Clay	Double Disc 1 inch	Hoe 2-3 Inch	Air Seeder 4-12 Inch
	Percent			lb N per acre		
Loamy sand	80	10	10	5	10-20	25-40
Sandy loam	60	35	15	10	15-25	30-45
Sandy clay loam	55	15	30	15	20-30	35-50
Loam	40	40	20	20	25-35	40-55
Silt loam	20	65	15	25	30-40	45-60
Silty clay loam	10	55	35	30	35-45	50-70
Clay loam	30	30	40	35	40-50	55-80
Clay	20	20	60	40	45-55	60-100

**It is unlikely that any researcher will tackle the question of fertilizer rate with small grains at seeding for a very, very long time.**

**The research required is tedious, requiring great attention to detail and timing of the field research.**

**These tables are a legacy of Dr. Deibert that will continue to be used for a century or more.**



**Sulfur is an extremely important nutrient for canola.**

Due to Dr. Deibert's S experiments in canola, potential growers during the early years of adoption were shocked by the magnitude of yield differences between no S and added S, and thus the rapid transition to canola was made with no 'train wrecks'. Establishment of canola as an alternative crop in the northern tier counties of North Dakota saved many farms during the 'scab years' of the mid-late 1990's.



**Yield of canola with S rate, source by landscape position, Rock Lake, ND, no-till system.  
Deibert et al., 1996.**

Sulfur rate lb/acre	Sulfur source	Soil Series/landscape position		
		Buse-hilltop	Barnes-slope	Svea-footslope
		Yield, lb/acre		
0		30	230	1430
20	AS	1610	1630	1680
40	AS	1760	1820	2120
40	ES	600	1040	1590

## Earthworms in North Dakota

His work also documented the types of earthworms in the state and help to explain why ND growers do not lose P in tile water, while farmers in Ohio do.

*Aporrectodea tuberculata*  
*Aporrectodea trapezoides*  
*Dendrobaena octaedra*  
*Lumbricus rubellus*

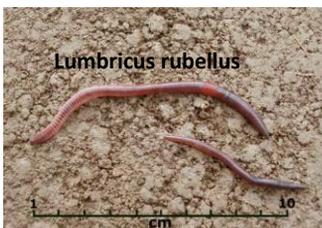
*Aporrectodea trapezoides*



*Aporrectodea tuberculata*



*Dendrobaena octaedra*



**Dr. Deibert's work will continue to add to North Dakota farmer profitability for many years to come.**

**I thought you needed to know where these recommendations came from.**

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