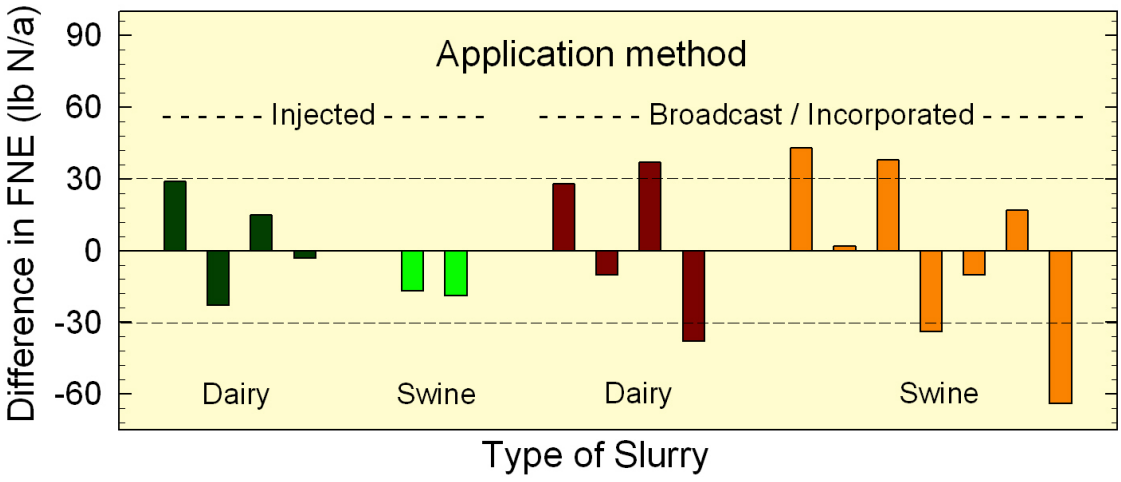
University of Minnesota Extension Fact Sheet

Nitrogen Availability from Liquid Swine and Dairy Manure: Results of On-Farm Trials in Minnesota

Manure nitrogen (N) availability depends on application method, as seen in general predictions by the University of Minnesota (UM Extension Bulletin WW-03553), because application method will influence ammonia loss (see Table 1). We evaluated the predictions of manure N availability on 13 Minnesota farms in 2005 and 2006 by measuring corn yield response to liquid swine and dairy manure. A short summary of results is presented here. Complete methods and results are found in UM Extension Bulletin 08583 of the same title.

Table 1. Predicted manure N loss and availability for the first and second year after application of dairy and swine manure. (Excerpted from UM Extension Bulletin WW-03553)

		Surface broadcast, followed by incorporation in			Direct injection	
Type		12 hours	< 4 days	4 days	Sweep	Knife
		% Total N				
Dairy	*Loss*	*10*	*20*	*40*	*5*	*10*
	Year 1 availability	55	40	20	55	50
	Year 2 availability	25	25	25	25	25
Swine	*Loss*	*10*	*30*	*50*	*5*	*15*
	Year 1 availability	75	55	35	80	70
	Year 2 availability	15	15	15	15	15



Results: At individual sites, predictions for injected manure were more reliable than for broadcast-incorporated manure, since they were consistently within 30 lb N/acre of the measured fertilizer N equivalent. In contrast, more than one-half of the predictions for broadcast-incorporated manure were greater than 30 lb N/acre higher or lower than the measured value. (Columns in the figure that are above the zero line indicate that more manure N was available than predicted using Table 1; those under the zero line indicate that Table 1over-predicted N availability.)

Conclusion: **Predictions of N availability from injected liquid manure are more reliable than for broadcast-incorporated liquid manure.** Direct injection by knives or sweeps is recommended to get the most predictable and highest value from manure N.