

**SLOW RELEASE NITROGEN FOR IRRIGATED HARD RED SPRING WHEAT
YIELD AND PROTEIN**

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ABSTRACT

Table 1. Jerome hard red spring wheat response to preplant conventional urea and slow release N fertilization. Parma, 2005.

Total N applied	Preplant Urea N	Preplant ESN N	Late Urea N	Yield	Protein	Test weight	Height	SPAD	Grain N
		-----lb/A-----		bu/A	%	lb/bu	in		lb/A
120	120	--	--	84	13.9	61.7	34	49.1	

Table 3. Jerome hard red spring wheat response to preplant conventional urea and ESN slow release N fertilization. Parma, 2007.

Total N applied	Preplant Urea N	Preplant ESN N	Late Urea N	Yield	Protein	Test weight	Height	Lodged	SPAD	Grain N	ANR
	-----lb/A-----			bu/A	%	lb/bu	in	%		lb/A	%
0	--	--	--	87.0	11.7	60.8	32.0	0	43.1	108.1	--

Preplant ESN protein averaged 0.17% lower than with split urea N over three years, but differed significantly in only one of six comparisons.

Total grain N content per acre also differed appreciably in the three years, and depended primarily on yield. Grain N ranged from 112 to 137 lb/A in 2005, and was highest at the lowest N rate due to higher yields. Grain N ranged from 136 to 174 lb/A in 2006, and from 170 to 214 lb/A in 2007 for the same treatments, but unlike 2005, were highest with the highest preplant N rate. In most comparisons, grain N with preplant ESN was greater than with preplant urea, and was consistently as high as with split applied urea.

Including a control in 2006 and 2007 enabled calculation of apparent N recovery (ANR). The ANR in harvested grain of that applied in both years decreased as N rates increased. ANR of preplant N ranged from highs of 50.6% and 51.3% with preplant urea and 57.1% and 61.2% with preplant ESN for the 120 lb N rate, to only 33.4% and 39.6% with urea and 40.7% and 44.0% with ESN at the 240 lb N rate. Recovery estimates are conservative as they don't include N contents of chaff and stubble.