

Quad County On Farm Research Group

Years: 2004-2005

Title: Legume Nitrogen Credit Study

Crop: Irrigated Corn

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Objective: To compare different methods of crediting legumes and determine the profitability of three treatments.

**2003 Spring Soil Sample
Nitrate Nitrogen Results**

Producer	0-12"	12-24"	24-36"	36" Av.
Hamilton #1	9 ppm	6 ppm	4 ppm	6.3 ppm
Hamilton #2	9 ppm	7 ppm	4 ppm	6.7 ppm
York #1 ^a	29 ppm	14 ppm	6 ppm	14.6 ppm
York #2	7 ppm	6 ppm	5 ppm	6.0 ppm
Average ^b	8.3	6.3	4.3	6.3

^a Sampled 0-8", 8-24", 24-36" & had 75 lbs N preplant.

^b Average of three fields (York #1 not included).

2003 Nitrogen Rates & Harvested Yields

Producer	Yield Goal	Soil N (6.3 ppm) + 75 lb N credit	Actual N + 45 lb N Credit	UNL (3.0 ppm) + 45 lb N credit
Hamilton #1	200	206	217	216
Hamilton #2	200	224	227	219
York #1	210	226	233	235
York #2	220	217	220	222
Av. Yield	207.5	217^b	224^a	222^a
Av. N Applied		80	111	141

***Superscripts with different letters are significant at 5%.**

**2004 Spring Soil Sample
Nitrate Nitrogen Results**

Producer	Bean Yield	Yield Goal	OM	Soil N ppm	Actual N + 75 lb N Credit	3 ppm + 1 lb/bu N Credit	3 ppm + UNL (45 lb N Credit)
York #1	55	210	2.4	6.0	110	140	150
York #2	72	200	2.5	5.9	71	93	116
Hamilton #1	68	200	2.2	5.3	86	121	144
Seward #1	65	200	3.0	9.0	44	102	122
Average ^b	65	202	2.5	6.6	80	114	133

^a Sampled 0-8", 8-24", 24-36" & had 75 lbs N preplant.

^b Average of three fields (York #1 not included).

2004 Nitrogen Rates & Harvested Yields

Producer	Yield Goal	Soil N (7.4 ppm) + 75 lb N credit	3.00 ppm + 1 lb/bu N Credit	UNL (3.0 ppm) + 45 lb N credit
York #1	210	200	205	201
York #3	200	208	210	213
Hamilton #1	200	202	205	208
Seward #2	200	218	228	230
Av. Yield	202	207^b	212^a	213^a
Av. N Applied		80	114	133

***Superscripts with different letters are significant at 5%.**

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Summary: Based upon the past two years data in south central Nebraska, under irrigated conditions, producers should be able to credit 1lb of nitrogen/bu. beyond the 45 lbs where beans yield 65 or 75 bushels and be fairly safe. It would be a good idea to collect some soil samples for residual nitrogen following soybeans and conduct some strip tests on your individual farm to see responses under your conditions.