

M

Module 4.6-1 Economic optimum nitrogen rates for cotton on a silty clay loam in Alabama change little with changes in prices. In this example, though cotton and N prices varied significantly, they usually varied together, keeping the cost to price ratios relatively constant and the EONR relatively stable. **Adapted from:** Snyder, C.S. and W.M. Stewart. 2005. Using the most profitable nitrogen rate in your cotton production system. [On-line].

| N price (\$/lb) | Cotton Price | | | |
|--------------------|-------------------------------|------------|------------|------------|
| | \$ 0.52/lb | \$ 0.62/lb | \$ 0.72/lb | \$ 0.82/lb |
| | Economic optimum N rate, lb/A | | | |
| 0.50 | 81 | 84 | 86 | 88 |
| 0.55 | 79 | 82 | 85 | 87 |
| 0.60 | 78 | 81 | 83 | 86 |
| 0.65 | 76 | 79 | 82 | 85 |
| 0.70 | 74 | 77 | 81 | 84 |
| 0.75 | 72 | 76 | 80 | 83 |

Submitted by S. Phillips, IPNI, USA, September 2011.

Module 4.6-2 Economically optimum rates of nitrogen for corn varied only slightly with market conditions over a 10-year period. In the west-central and northwest regions of Indiana, the average rate required to remove N limitations for corn following soybeans was estimated to be 171 lbs N/A. The economically optimum rate—defined as the rate at which the last increment of N fertilizer returns a grain yield increase large enough to pay for itself—depends on price ratio and is generally lower. Between 2000 and 2009 the price ratio between N fertilizer and corn grain (expressed as \$/lb N divided by \$/lb grain) ranged between 5 and 10 (a higher ratio reflects relatively more expensive fertilizer). Recommended rates within this range of price ratios varied as shown in the table below. **Adapted from:** Camberato et al. 2011. Nitrogen management guidelines for Indiana. [On-line].

| N cost/lb | Grain price, \$/bu | | | | | |
|-----------|--------------------|--------|--------|--------|--------|--------|
| | \$2.80 | \$3.36 | \$3.92 | \$4.48 | \$5.04 | \$5.60 |
| \$0.20 | 162 | 163 | 164 | 165 | 165 | 166 |
| \$0.30 | 158† | 159 | 161 | 162 | 163 | 163 |
| \$0.40 | 153 | 156 | 158 | 159 | 160 | 161 |
| \$0.50 | 149 | 152 | 154 | 156 | 158 | 159 |
| \$0.60 | 145 | 148 | 151 | 153 | 155 | 156 |
| \$0.70 | 140 | 145 | 148 | 150 | 152 | 154 |
| \$0.80 | 136 | 141 | 145 | 147 | 150 | 152 |
| \$0.90 | 132 | 137 | 141 | 145 | 147 | 149 |
| \$1.00 | 127 | 133 | 138 | 142 | 145 | 147 |

† Highlighted values represent EONR recommendations at price ratios (expressed as \$/lb N divided by \$/lb grain) between 5 and 10.

Submitted by S. Phillips, IPNI, USA, September 2011.