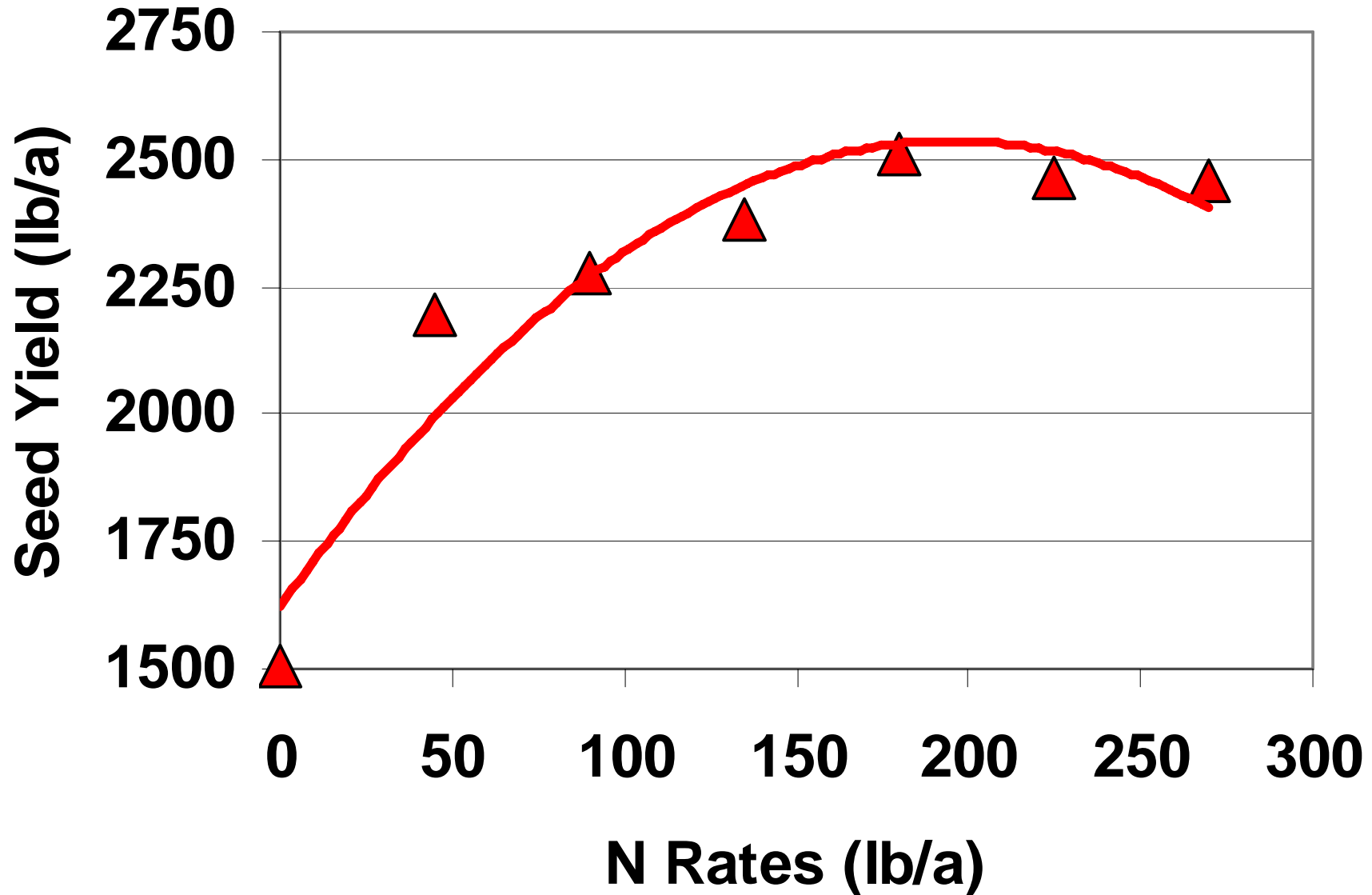


Annual Ryegrass Fertilizer Summary

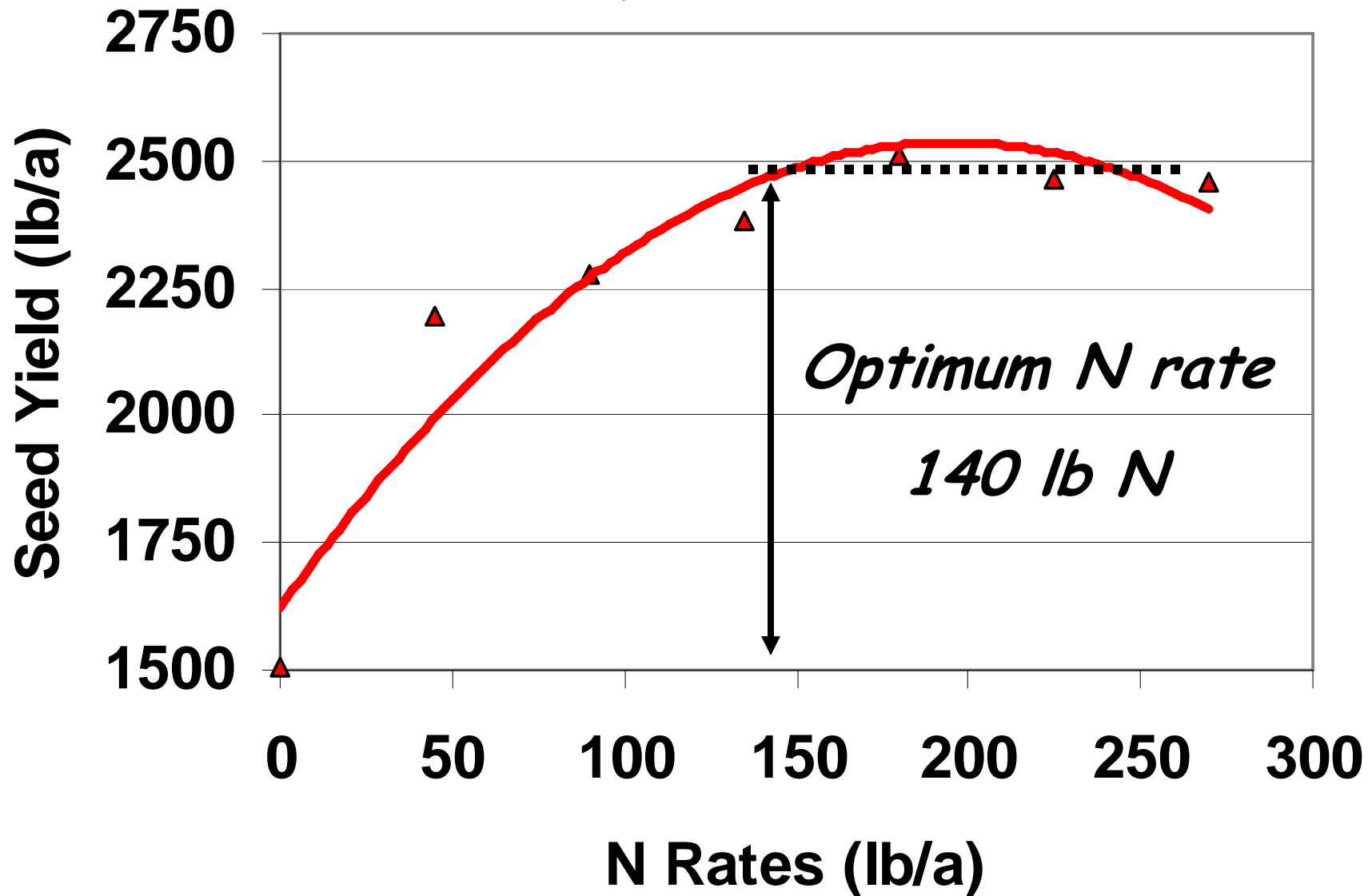


Annual Ryegrass Seed Yields

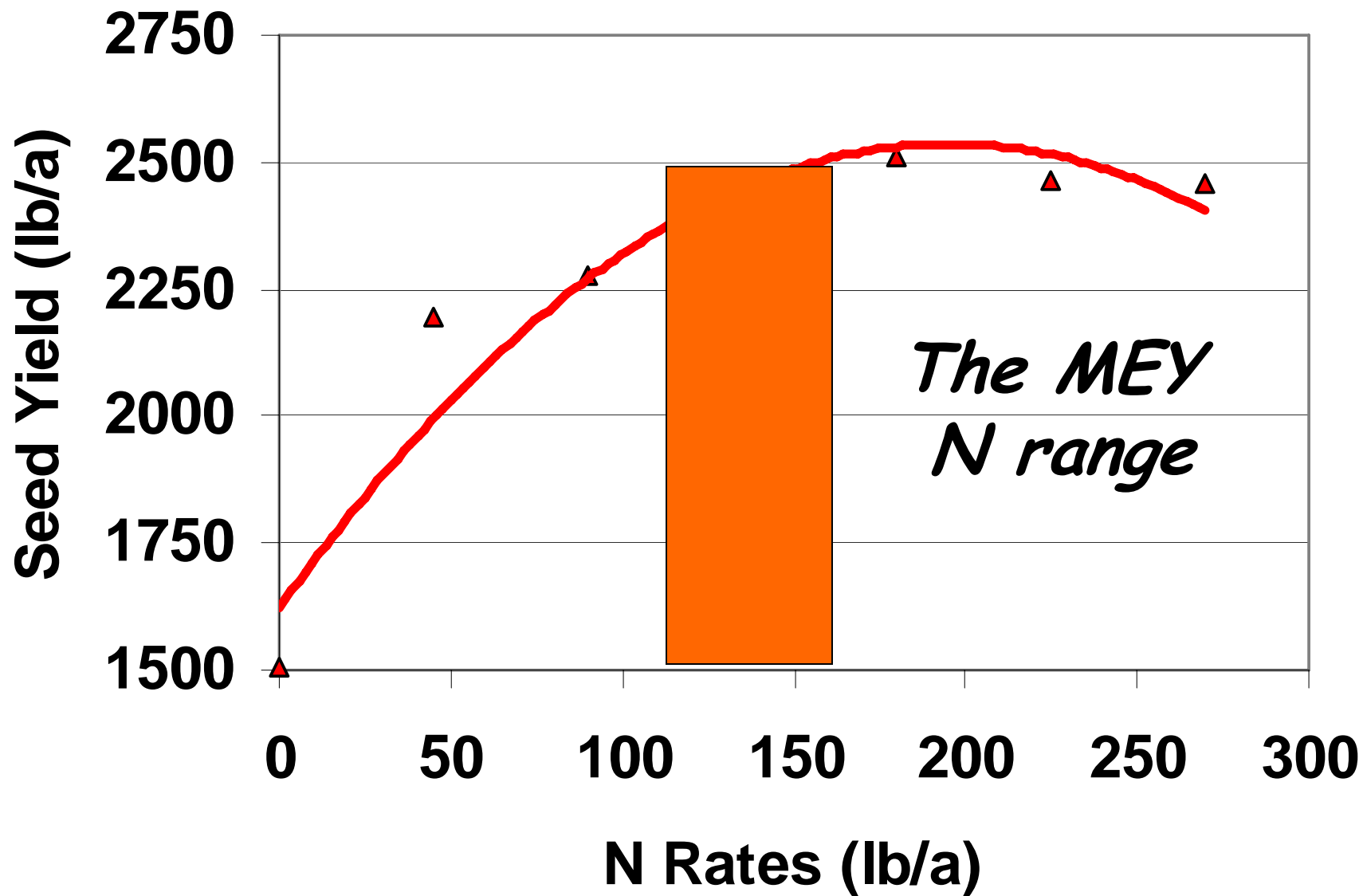
average across sites



MEY = Maximum Economic Yield
The "optimum N rate"



Maximum Economic Yield



The downside of high or "excessive" N fertilizer rates

1. Economics (\$\$\$)
2. Soil acidification
3. Lodging
4. Water quality

Net return on investment

(N=\$0.33/lb and seed = \$0.22/lb)

Fertilizer rate (lb/a)	Net return (\$/a)	"Incremental" Net return per \$ invested
45	98	\$6.54
90	150	\$3.29
135	175	\$1.78
180	165	\$(-0.60)
225	150	\$(-1.00)

Soil pH after 3 years of N fertilizer

<u>N fertilizer Rate (lb/a/yr)</u>	<u>Well-drained silt loam</u>	<u>Poorly-drained clay loam</u>
0	7.1	5.4
135	6.6	5.0
270	6.0	4.8

Nitrate-Nitrogen in the surface foot of soil

NO_3 (ppm)

< 10	Low/good
10-20	Medium
20-30	High
> 30	Excessive

Nitrate-Nitrogen (ppm)

in the surface foot of soil in November

Nitrogen
Rate
(lbs/ac)

Annual
ryegrass
Average

0

9

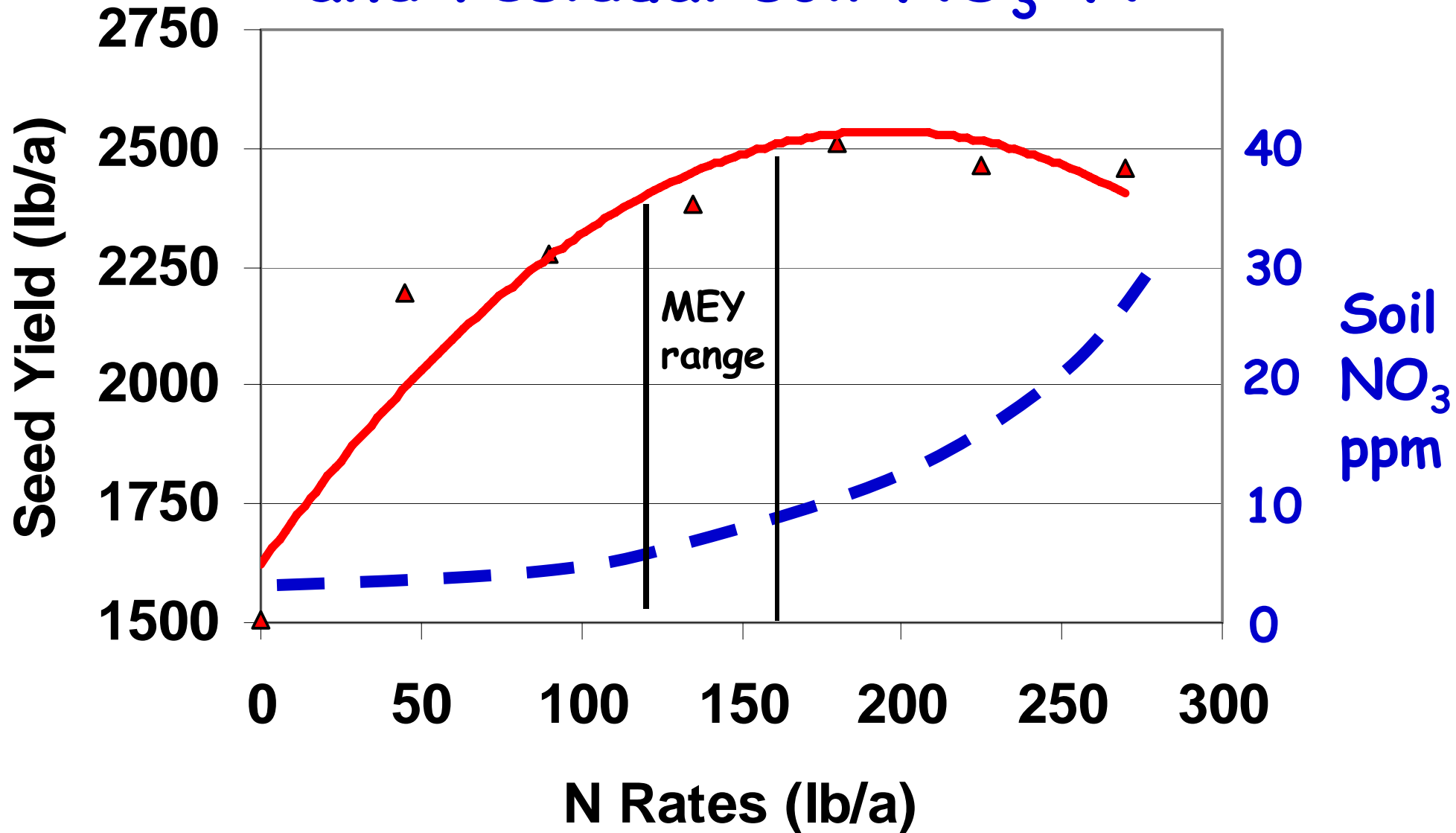
135

11

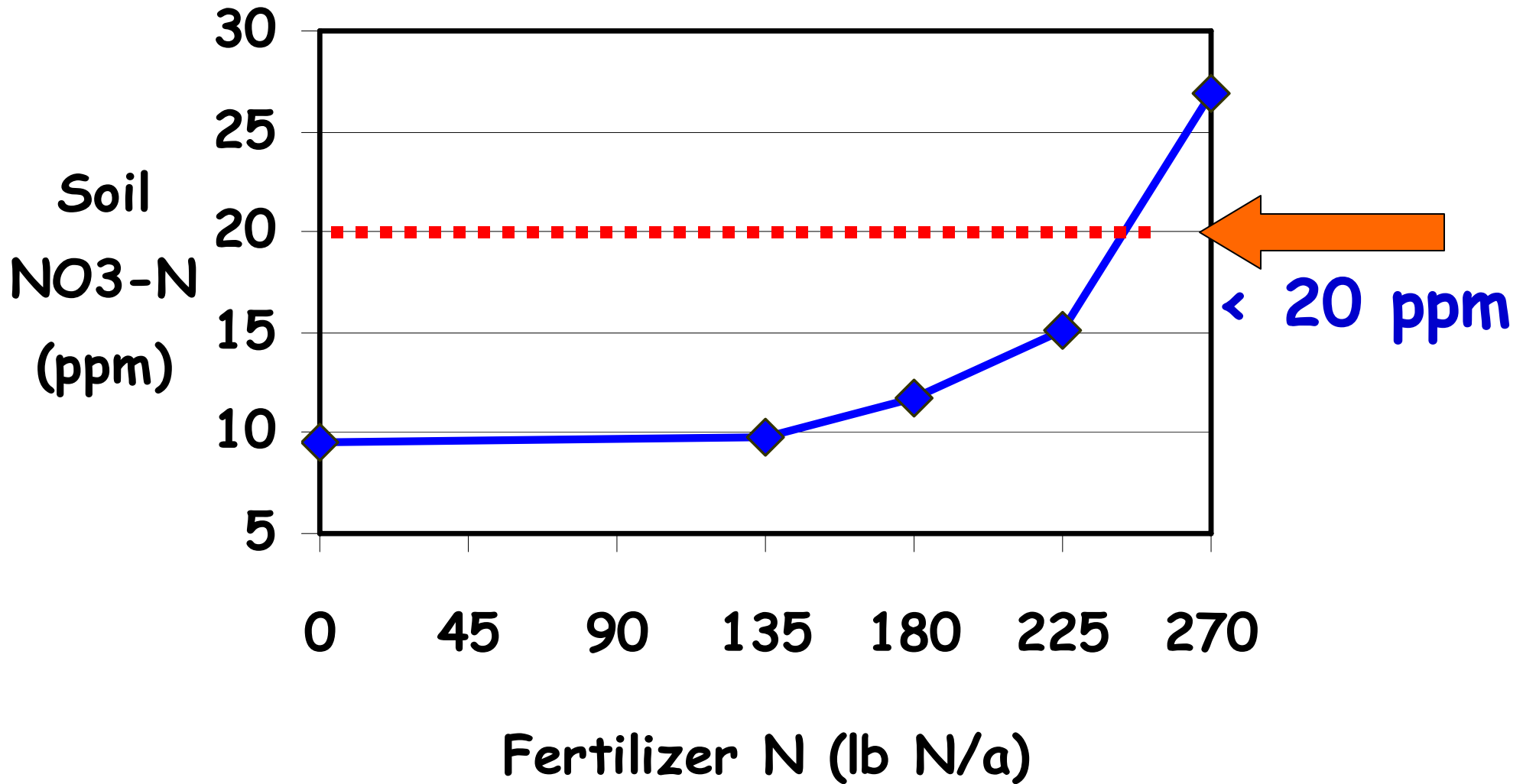
270

24

Annual ryegrass seed yield and residual soil NO₃-N



Annual ryegrass N rates and residual soil NO₃-N



Summary - what we learned



1. Grass seed crops are one of the most beneficial crops for the soil and the environment.
2. Recommended use rates don't pose a threat to water quality.
3. There's good economic and agronomic reasons to avoid excess N rates.