30 lb N/A doses in the surface tape system in 2001-2002. The task then is to further increase water use and N fertilizer use efficiency in center pivot and furrow irrigated cotton. Stabilized or slow-release N products may have potential to increase N use efficiency in furrow-irrigated cotton. Pre-plant soil testing of NO_3^- to 24 in. can greatly improve N fertilizer recommendations and N use efficiency for the western cotton belt.

Internal N use efficiency was remarkably similar for all irrigation systems, averaging 12 lb lint/lb N in the plant. This is illustrated in a plot of total N uptake vs. lint yield in bales (**Figure 1**). The slope of the regression line is 40 lb N/bale, which is a very efficient internal N use efficiency. This compares to 100 lb N/bale in Alabama (Mullins and Burmester, 1990) and 50 lb N/bale in California (Bassett et al., 1970).

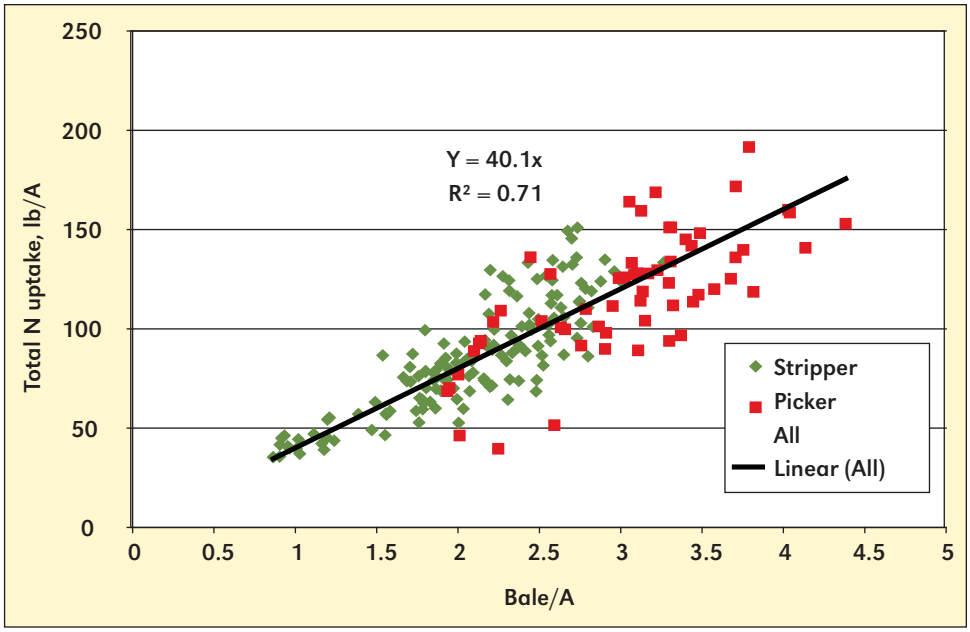

Figure 1. Total N uptake vs. cotton lint yields, West Texas, 2000-2007.

Physiological efficiency of N was more variable than internal efficiency, because it incorporates N response (**Table 1**). However, no real trends with irrigation systems could be observed. Agronomic N use efficiency is the most important to producers. Subsurface drip irrigation with fertigation (2005-2007) had the greatest agronomic efficiencies, while furrow and LEPA irrigations had the lowest.

Summary

Nitrogen fertilizer recovery in cotton ranged from 12 to 75% for furrow and subsurface drip irrigation systems, respectively. Nitrogen fertilizer in furrow-irrigated fields was sidedressesed in one dose at first square. In subsurface drip irrigation, low, frequent doses of N were fertigated between squaring and mid bloom. Recovery efficiency for surface drip tape that is similar to LEPA irrigation was 40%. Stabilized or slow-release N products may increase N use efficiency in furrow-irrigated cotton, although such products were not evaluated here. Internal N use efficiency was not affected by irrigation system and averaged 40 lb lint/bale. Pre-plant soil testing of NO_3^- to 24 in. can help improve N use efficiency in all irrigation systems, increase cotton growers' profits, and reduce export of N to soil, water, and air. BC

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Nitrogen deficiency in corn.

Crop Nutrient Deficiency Photo Contest Entries Due

December 15, 2008, is the deadline for entries in the annual IPNI contest for photos showing nutrient deficiencies in crops. There are four categories: N,P, K, and Other. Supporting-information and verification data are required with original photos, preferably from the current year. Cash prizes are offered in each of the four categories: First place = US$150; Second place = US$75; and Third place, US$50. Entries can only be submitted electronically. For details and instructions, visit this website: >www.ipni.net/photocontest<. BC