Nitrogen Use Efficiency in Vegetable Crops: 2006 Executive Summary

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On-farm nitrogen tests to minimize nitrogen inputs and optimize yields in processing bell PEPPER production.

Objectives: 1) Determine accuracy of on-farm nitrogen tests to measure soil and plant nitrate in processing pepper production
2) Evaluate different in-season nitrogen application rates to improve nitrogen use efficiency in processing pepper

Site characteristics:
1) Sandy loam (77:15:8 %SSC) pH 6.0 3.2% OM
2) Silt loam (31:53:16 %SSC) pH 7.7 2.8% OM

N rates:
- Preplant broadcast incorporated ammonium nitrate at 0, 31,63,125,188 lb N/ac
- Preplant broadcast incorporated UMAXX® at 63 lb N/ac
- Split application ammonium nitrate at 31+31, 63+31, 0+31, 31+63, 63+63 lb N/ac

On-farm quick tests: Cardy® meter, NECi kits, Reflectoquant® test strips, SPAD® meter

General 2006 conclusions:
- No difference in pepper yields with the different nitrogen treatments –due to soil available nitrogen– this is the 3nd year of a 4 year study
- In-season nitrogen applications and UMAXX® did not improve pepper yields
- Sufficient nitrate-nitrogen concentrations (≥20 ppm) in soil throughout the growing season
- Pepper plant tissue analysis indicated an adequate to high plant status for nitrogen
- A preliminary PSNT value of >20 ppm indicated no yield benefit with additional nitrogen fertilizer applied at the time of split nitrogen application
- For soil, on-farm quick tests accurately determined soil nitrate-N