

2009 SMFD

Nutrient Management Issues for Soybean Production

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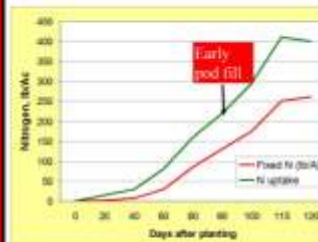
Nutrient Management Issues for Soybean Production

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2009SMFDNutrient001

Soybean N need



Inoculation?

Starter N?

1. 50 lb in ND and RRV of MN
2. 6% yield increase with 15 lb in Brookings, 2x2
3. Ogalaia
4. No yield advantage further south, e.g MN, MO
5. What about no-till irrigated C-C-SB?

N application at beginning podfill, e.g. 25-30 lb through fertigation

1. IA, MN, SD, MO: little or no response when yield <80 bu/A
2. ~7 bu gain if >60 bu/A in KS
3. MO: >60 bu/A; pH < 7.5: soil nitrate <75 lb/A in 0-24" depth (9-10 ppm)
4. Guidelines for Nebraska

2009SMFDNutrient002

Please note this is NOT the same version used in previous years...this is an edited version.

Improving fertilizer P recovery

- Critical levels: Bray-1 or Mehlich 3 < 13 ppm; Olsen < 8 ppm. Is high STP needed to maximize yield?
- P use efficiency improved with band application; apply >1 inch from seed
- Additives to improve fertilizer P recovery, e.g. by reducing P fixation in soil
Are they effective? Will more P need to be applied eventually?
- Poly vs ortho-phosphate

2009SMFDNutrient003

Chlorosis Management



- **Variety selection.** Choose varieties based on chlorosis rankings from seed companies.
- **Plant density.** Goal of 12 viable seeds/foot, independent of row spacing.
- **Fe chelate starter.** Apply 2-4 lb product/acre in 20-25 gal water with the seed.
- **Foliar fertilization.** Use either iron sulfate or iron chelate, though results are often inconsistent.

2009SMFDNutrient006

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Chlorosis Management

Aerial Photograph

Yield Map

Soil Electrical Conductivity

Site-Specific Management Options

- Plant tolerant cultivars to areas which are chlorosis-prone.
- Use Fe chelate starter fertilizer in chlorosis-prone areas.
- Identify field areas which are not profitable and plant these to another crop.

2009SMFDNutrient007

The agronomics and economics of variable rate liming

Nance County

4 treatments

2 reps

Other trials planned for Clay, Saunders, and Wayne Counties.

2009SMFDNutrient008

Lime use to amend acid soils

1. Site specific application

- Variability in lime need
- Sampling
 - grid sampling
 - Veris pH +EC
 - Management Zone

Yield increase (bu/ac)

1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005

2007smfd-nutrient002

Lime use to amend acid soils

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