Foliar Fertilization of Soybeans

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Application opportunities:

1. Early season N,P,K (V4-V6)

2. Midseason micro-nutrients (B,Mn)

3. Podfill N,P,K,S (R2-R7)

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Field trial success:

Iowa early season studies

1. Increases at 7 of 48 sites; decreases at 2 of 48 sites; average + 0.80 bu/a

2. Increases at 3 of 27 sites; decreases at 3 of 27 sites; average + 0.27 bu/a

3. No yield increases or decreases at 18 sites; average + 0.71 bu/a

Responses more likely with dry spring/early summer, where available P/K low, plant growth poor.

Application costs exceeded benefits

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Podfill trial results:

Garcia and Hanway (1976)

Exp 1 = yield +1.2 to 7.0 bu/a
average = +3.62 bu/a

Exp 2 = yield -2.5 to +15.5 bu/a
average = +2.74 bu/a

Exp 3 = yield +22.2 to +23.4 bu/a

Exp 4 = yield -3.6 to +8.6 bu/a
average = +7.26 bu/a

Exp 5 = yield -0.5 to +5.7 bu/a
average = +6.40 bu/a

Exp 6 = yield -5.8 to +6.6 bu/a
average = -5.16 bu/a

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Other studies:

Florida	-3.1 bu/a
Maryland	+8.89 bu/a
Minnesota	+0.65 bu/a
Wisconsin	+1.41 bu/a
Georgia	-4.43 bu/a
TVA various loc.	-5.51 bu/a

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Micronutrient studies mixed

- B increased pods/branch sandy, low OM soils worse
- Mn increased yield on high OM, high pH soils
- Premium mixes promoted

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Bottom line:

- Responses to foliar NPKS

  early -- unlikely

  podfill -- occasionally

- Responses to foliar micronutrients

  Soil specific

  Nutrient specific

  Multiple applications often better

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