Nitrogen Source Management for No-Tillage Wheat Following Corn or Soybean. (S04-grove114344-Oral)

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Abstract:

No-till winter wheat is grown after both corn and soybean in Kentucky, resulting in very different residue levels and residue quality when fertilizer N is applied. Over 2 seasons, production functions were used to evaluate differences among 4 N source-management treatments (urea, ammonium nitrate, UAN solution broadcast, UAN solution streamed), across six N rates (0, 30, 60, 90, 120 and 150 kg N/ha) on flag leaf N, grain N, and grain yield of no-till wheat grown after corn or soybean. Flag leaf N responded positively to fertilizer N rate, and leaf N in wheat after corn was similar to that after soybean. Grain N rose from 18.1 to 25.2 gN/kg DM, without reaching a maximum, as the N rate increased. Source management did not affect yield but ammonium nitrate and urea increased grain N than did either UAN treatment. The rotation effects on wheat yield responses to fertilizer N depended on the season. The yield response after corn was similar to that after soybean in 1999, when yields averaged 4.32 Mg/ha. However, in 2000 (average yield was 5.85 Mg/ha) the yield response to fertilizer N for wheat after soybean was largely absent.

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