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## Potassium Fertilization of Conventional- and No-Till Cotton

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Potassium fertilization meeting the uptake requirements of the fast-fruited cotton (*Gossypium hirsutum* L.) cultivars requires information on soils of varying extractable K levels, tillage systems, and K fertilization rates. Field studies were conducted to evaluate K fertilization for cotton produced on soils of different extractable K levels. Preplant K rates of 0, 28, 56, 84, 112, 139, and 167 kg ha<sup>-1</sup> were evaluated between 1995 and 1997 on Memphis silt loam (fine-silty, mixed, active, thermic, Typic Hapludalfs), Lexington silt loam (fine-silty, mixed, active, thermic Ultic Hapludalfs), and Loring silt loam (fine-silty, mixed, active, thermic Oxyaquic Fragiudalfs). No-till research on the Memphis and Lexington silt loam soils was continued through 1999. Yields were increased by applying 28 to 56 kg ha<sup>-1</sup> higher K rates than recommended. For the low extractable K soil, conventional-till yields were increased by broadcasting 139 kg K ha<sup>-1</sup>, while no-till yields were increased by broadcasting 168 kg K ha<sup>-1</sup>. No-till yields for the two high extractable K soils were increased by broadcasting rates up to 84 kg K ha<sup>-1</sup>. Based on the sufficiency of petiole K, leaf K concentrations of  $\leq 10.4$  g kg<sup>-1</sup> were insufficient. Extractable K corresponding to the highest yields varied between 72 and 141 mg kg<sup>-1</sup>. Except for the four lowest values, the remaining values (100 to 141 mg kg<sup>-1</sup>) are higher than the current values.