

**EVALUATION OF ROOT HAIR GROWTH  
OF TWO COTTON CULTIVARS USING  
MICROSCOPY**

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**Abstract**

Differences in root hair growth among cotton cultivars (*Gossypium hirsutum* L.) may account for observed differences in K uptake efficiency. A study was conducted to evaluate root hair growth of two cotton cultivars that differ in the rate of K uptake: DP20 and DP90. A previous kinetic study showed that the rate of K uptake per unit root length by DP20 was greater than by DP90. Roots of seven day old seedlings were stained with methyl blue dye and mounted in 25% glycerin with a phenol crystal on a microscope slide. Root hair length and number on ten to twelve plants per cultivar were measured using an ocular micrometer. The average length of root hairs on primary roots for DP20 and DP90 was 0.203 and 0.194 mm, respectively. The average number of root hairs on primary roots for DP20 was 15% greater than for DP90. Even though the average length of root hairs did not differ significantly between the two cultivars, the total length of root hairs would probably be highest for DP20 since root hair number for this cultivar was significantly higher. These variations in root hair development could explain differences in uptake by the two cultivars observed in a previous study.