



### 施氮量对不同熟期棉花品种的生物量和氮素累积的影响

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### Effects of Nitrogen Rates on Biomass and Nitrogen Accumulation of Cotton with Different Varieties in Growth Duration

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摘要

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**摘要** 以辽棉19号(生育期125 d)和美棉33B(生育期135 d) 2个生育期差异较大的品种为材料, 于2007—2008年在东北特早熟棉区(辽宁辽阳, 41° 26' N, 123° 14' E) 设置棉花不同施氮量(即施氮 0, 240, 480 kg·hm<sup>-2</sup>) 试验, 研究施氮量对东北特早熟棉区棉花生物量、氮素累积特征及氮素累积利用率动态变化的影响。结果表明: 棉花生物量和氮素累积量随着棉花生育进程的动态变化符合S型曲线, 氮素的快速累积起始日较棉花生物量早10~12 d; 辽棉19号和美棉33B均在施氮240 kg·hm<sup>-2</sup>条件下棉花生物量和氮素累积速率峰值出现时间最早, 累积速率最高, 其生物量、氮素累积量和皮棉产量最高, 同时氮素利用效率较高。施氮480 kg·hm<sup>-2</sup>不仅降低棉花生物量和氮素累积速率及累积量, 而且降低了生殖器官分配系数, 导致产量较低。

**关键词:** 东北地区特早熟棉区 棉花 施氮量 生物量 产量

**Abstract:** To investigate the effects of nitrogen application rate on cotton biomass accumulation, nitrogen uptake, and nitrogen fertilization recovery rate in the cotton extremely early-maturation region, field experiment was carried out in Liaoyang, Liaoning, using two cotton cultivars Liaomian 19 and NuCOTN33B, with three nitrogen levels (0, 240, 480 kg·hm<sup>-2</sup>, respectively). The accumulated dynamic of biomass and nitrogen of cotton were described by Logistic curve equation. Nitrogen application rate changed biomass and nitrogen accumulation characteristics of cotton, and then affected the yield and quality of cotton. The results showed the beginning of speed nitrogen accumulation were 10~12 days earlier than that of biomass. With nitrogen at 240 kg·hm<sup>-2</sup>, biomass and nitrogen accumulation amount was the highest, eigenvalues of the dynamic accumulation model of cotton was the most harmonious, nitrogen recovery rate was the highest, thus lint yield was highest and the cotton fiber quality was the best. At 480 kg·hm<sup>-2</sup> of nitrogen, accumulation amount and rate of biomass and nitrogen decreased, and the distributive indices of biomass in reproductive organ and lint yield reduced.

**Keywords:** The cotton extremely early-maturation region in Northeast China cotton nitrogen rate biomass yield

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