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南疆超高产棉花光合物质生产与分配关系的研究

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Study on Relations on Photosynthetic Production and Its Distribution of Super High-Yield Cotton in South Xinjiang

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摘要 于 2008－2009 年在南疆自然生态条件下，利用普通高产和中低产棉花对比研究了超高产棉花光合物质生产与分配关系。结果表明：超高产棉花 LAI 花前增长速率明显快于高产、中低产棉花，盛铃期峰值大，且盛铃期后下降缓慢，后期仍能保持较高水平；叶片 SPAD 值与 Pn（净光合速率）关系密切，即开花前超高产棉花叶片 SPAD 值增长较快，Pn 增长较快，后期叶片 SPAD 值保持较高水平，Pn下降缓慢；超高产棉花地上部分与蕾铃干物质快速积累持续期长，且积累量大；超高产棉花光合产物向茎、叶器官分配集中在开花期以前，花后向茎、叶输送减少，转而向蕾铃器官分配较多，保证后期产量形成，而高产、中低产棉花开花后仍有光合产物向茎、叶输送，对产量影响较大。

关键词： 超高产棉花 光合产物 分配

Abstract： In order to study yield formation and the relationship between the photosynthesis matter production and its distribution of the super-high yield cotton，a field experiment was conducted in south Xinjiang under natural ecology conditions in 2008 and 2009. The results showed that the leaf area index(LAI) of the super-high yield cotton increased significantly than that of high-yield or mid-low yield cotton before flowering. The max LAI appeared at boll forming stage，after that, the LAI decreased slowly but still kept at a relatively high level until the end. There is a close relationship between leaf SPAD and its Pn, that is to say, the leaf SPAD of the super-high yield cotton increased fast before flowering, and kept at a high level at the end of the growth stage. Before flowering, the leaf Pn also increased fast, and had a slowly decreasing period. The dry matter aboveground and that of bud and boll accumulated fast and lasted longer. Photosynthetic production of the super-high yield cotton transmitted into stem and leaves mainly at the stage before flowering, then the bud and boll had got larger transmission amount which guaranteed the yield formation. But a relatively larger photosynthesis production still transmitted into stem and leaves in the high and mid-low yield cotton, this had a negative effect on cotton yield.

Keywords： super -high yield cotton photosynthesis distribution

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