作物学报 2000 26 (2): 148-156 ISSN: 0496-3490 CN: 11-1809/S

研究论文

建国以来我国黄淮棉区棉花品种的遗传改良Ⅰ．产量及产量组分的改良

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收稿日期 1998-7-22 修回日期 1999-3-17 网络版发布日期 接受日期

摘要 本文是我国黄淮棉区棉花品种遗传改良和系列研究之一， 目的在于探讨建国以来我国黄淮棉区棉花品种在产量和产量组分性状(株铃数、 铃重、 衣分)上的遗传改良成效。 对不同历史时期10个代表性品种2年5点的试验资料和30多年的区域试验资料的研究表明， 建国以来， 我国黄淮棉区棉花品种产量性状的遗传改良成效显著， 品种的产量潜力以每年8.00 kg/hm2的速度增长， 1950～1994年间皮棉单产平均年增长速率为16.14 kg/hm2，品种改良的实际贡献在30%以上； 近期育成的品种比早期品种产量提高68.69%， 株铃数提高2.4个／株， 衣分提高5%， 铃重变化不明显； 现在品种产量的提高主要通过提高株铃数和衣分来实现； 在不同的育种阶段， 产量组分(铃数、 铃重、 衣分)对产量的贡献不同， 这种变化反映出我国建国以来黄淮棉区育种策略和选择重点的变化。 在产量与产量组分性状关系中， 铃重、 株铃数和衣分的负相关已逐步成为进一步提高产量的限制因素，需通过创造新的遗传群体等途径来解决。 本文还就研究品种遗传改良的方法进行了讨论和评述。

关键词 棉花 品种 遗传改良

分类号

Genetic Improvements of Cotton Varieties in Huang-Huai Region in China Since 1950sI. Improvements on Yield and Yield Components

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Abstract This paper is the first part of the series reports about genetic improvements of cotton varieties in Huang-Huai Region(Cotton Region in the Valley of Yellow River and Huai River)in China, the purpose of which is to study the genetic improvements on yield and yield components (bolls per plant, boll size and lint percentage) of cotton varieties grown in Huang-Huai Region since 1950s. Experimental data of 10 representative varieties (both obsolete and current) at 5 sites over 2 years and archive data obtained from Huang-Huai Regional Trials in last 30 years were studied. Results indicated that a great genetic progress in cotton yield has been made by breeding programs since 1950s. The yield potential increased at the rate of 8.00 kg/hm2 per year. The average rate of yield increase from 1950 to 1994 was 16.14 kg/hm2 per year, 30% or more of which attributed to genetic improvement. A new variety produced 68.69% higher lint yield, 2.4 more bolls per plant and 5% higher lint percentage than the old ones, but the significant change in boll size was not detected. The yield increase of current varieties was mainly accounted for the improvements of bolls per plant and lint percentage. The relative effects of bolls per plant and boll size and lint percentage on lint yield varied at different breeding stages, which reflected the change of breeding strategy and selection emphasis. The negative correlation between boll size and bolls per plant, and boll size and lint percentage was detected; such negative correlation would become a limit in cotton breeding. Methods of studying genetic improvement in crops were also reviewed and discussed in this paper.

Key words Cotton Variety Genetic improvement

DOI:

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