研究与进展　　　　　最新目录　|　下期目录　|　过刊浏览　|　高级检索　　　<< Previous Articles | Next Articles >>

HA-GGE双标图在长江流域棉花品种区域试验中的应用

许乃银[1]，金石桥[2]，张国伟[1]，李 健[1]

1.江苏省农业科学院经济作物研究所/农业部长江下游棉花与油菜重点实验室，南京 210014；2.全国农业技术推广服务中心，北京 100125

The Effectiveness of HA-GGE Biplot Application in Analyzing the Data from the National Cotton Cultivar Regional Trial in the Yangtze River Valley

XU Nai-yin[1], JIN Shi-qiao[2], ZHANG Guo-wei[1], LI Jian[1]*

1. *Institute of Industrial Crops*, *Jiangsu Academy of Agricultural Sciences/ Key Laboratory of Cotton and Rapeseed*，*Ministry of Agriculture*, *Nanjing* 210014, *China*;
2. *National Agricultural Technology Extension and Service Center*, *Beijing* 100125,*China*

摘要	参考文献	相关文章

Download: PDF (950KB)　HTML 1KB　Export: BibTeX or EndNote (RIS)　　Supporting Info

摘要 本研究采用HA-GGE双标图对2012年长江流域国家棉花品种区域试验品种丰产性与稳定性、品种适宜种植区域划分、试点的代表性和鉴别力以及理想品种与环境筛选等进行全面评价，以展示HA-GGE双标图在棉花区域试验中的应用效果。结果表明：（1）皮棉产量的基因型、环境、基因型与环境互作效应均达极显著水平（$P < 0.01$），其中环境主效占处理变异平方和的78.7%，而基因型主效占8.7%，基因型与环境互作效应占12.6%。（2）借助双标图的"理想品种"和"理想试点"功能图筛选出最理想的品种中CJ408（G2）和南农12号（G9），筛选出最理想的试点为慈溪和江陵。（3）用"适宜品种与环境组合"功能图为各品种划分了适宜的种植区域。（4）用"试点间关系"功能图将试点划分为4类，其中位于四川盆地的射洪和成都试点聚为1类，位于长江流域棉区北缘的河南南阳单独聚为1类，说明试点聚类与地理环境密切相关。

关键词： 棉花（*Gossypium hirsutum* L.）　HA-GGE双标图　鉴别力　代表性　区域试验

Abstract： A large number of regional crop trials have demonstrated the ubiquitous existence of genotype × environment interactions (G×E), which make it complicated to select superior cultivars and identify the ideal testing sites. The GGE (genotype main effect plus genotype × environment interaction) biplot is the most powerful statistical and graphical displaying tool available for regional crop trial dataset analysis. The objective of the present study was to demonstrate the effectiveness of the biplot in evaluating the high and stable yields of candidate cultivars simultaneously, and in delineating the most adaptive planting region, analyzing trial location discrimination ability and representativeness, and identifying the ideal cultivar and trial locations. The lint cotton yield dataset with nine experimental genotypes and 17 test locations (three replicates in each) was collected from the national cotton regional trial in the Yangtze River Valley (YaRV) in 2012. The results showed that: (1) the effects of genotype (G), environment (E), and genotype × environment interaction (G×E) were significant ($P < 0.01$) for lint cotton yield. Differences among environments accounted for 78.7% of the treatment total variation in the sum of squares, whereas the genotype main effect accounted for 8.7%, and the genotype × environment interaction accounted for 12.6%. (2) The "ideal cultivar" and "ideal location" view of the HA-GGE biplot identified Zhongcj408 (G2) and Nannon12 (G9) as the best ideal genotypes; Cixi in Zhejiang Province and Jiangling in Hubei Province were the most ideal locations.(3) The "which-won-where" view of the biplot outlined the adaptive planting region for each experimental cultivar. (4) The "similarity among locations" view clustered the trial locations into four groups, among of which the two outlier locations, Shehong (SH) and Chengdu (QBJ), located in Shichuan Basin in the upper reaches of YaRV, were clustered in one group, whereas the Nanyang (NY) of Henan Province at the northern edge of YaRV was singled out as a sole group. Such location clustering results implied an apparent association with the geographical environment.

Keywords： cotton (Gossypium hirsutum L.)　HA-GGE biplot　discrimination ability　representativeness　crop regional trial

Service
- 把本文推荐给朋友
- 加入我的书架
- 加入引用管理器
- Email Alert
- RSS

作者相关文章
- 许乃银
- 金石桥
- 张国伟
- 李 健