作物学报
Acta Agronomica Sinica

作物学报 » 2012, Vol. 38 » Issue (02) :322-332 DOI: 10.3724/SP.J.1006.2012.00322

多分蘖玉米分蘖发生规律及密度和播期的影响

王如芳，张吉旺*，吕鹏，董树亭，刘鹏，赵斌*

作物生物学国家重点实验室 / 山东农业大学农学院，山东泰安 271018

Tillering Characteristics of Multi-tiller Maize and Influence of Plant Density and Sowing Date

WANG Ru-Fang,ZHANG Ji-Wang*,LÜ Peng ,DONG Shu-Ting,LIU Peng,ZHAO Bin*

State Key Laboratory of Crop Biology / Agronomy College of Shandong Agricultural University, Tai’an 271018, China

摘要 | 参考文献 | 相关文章

Download: PDF (295KB) HTML 1KB Export: BibTeX or EndNote (RIS) Supporting Info

摘要 本论文以不同类型玉米品种为试验材料，设置不同种植密度和播期，旨在研究多分蘖玉米的分蘖发生规律及其调控。结果表明，玉米各级分蘖与主茎叶片有同伸关系，一级分蘖数(n)与主茎叶龄(N)呈n=N-3对应关系，二级分蘖与一级分蘖也符合上述对应关系。不同类型玉米品种分蘖能力差异显著，墨西哥玉米(MXG)分蘖能力最强，最大分蘖数可达25~40个，科多4号(KD4)达2~4个，五岳97-1 (WY97-1)为1~2个，郑单958 (ZD958)一般无分蘖。玉米分蘖能力受播期、密度影响，高光热、低密度有利于分蘖发生，随播期推迟，从出苗到出现分蘖的时间缩短，分蘖出叶速度加快，最大分蘖数增加；在45 000株 hm^{-2}种植密度下，4月25日和6月25日播种的KD4最大分蘖数分别为3.50和4.00个，最终分蘖数分别为2.33和2.00个，分蘖消亡率(消亡分蘖数/最大分蘖数)分别为33.4%和50.0%，在30 000株 hm^{-2}和60 000株 hm^{-2}种植密度下具有同样变化趋势。随密度增加，分蘖出现时间推迟，出苗后相同天数对应分蘖叶龄减小，相同主茎叶龄对应分蘖数减少，最大分蘖数和最终分蘖数降低，分蘖消亡率增加；4月25日播种，密度为30 000、45 000和60 000株 hm^{-2}下，KD4的最大分蘖数分别为3.80、3.50和3.22个，最终分蘖数分别为3.00、2.33和1.67个，分蘖消亡率分别为21.05%、33.43%和48.14%，6月25日播种处理具有相同变化趋势。

关键词： 多分蘖玉米 分蘖规律 密度 播期

Abstract: Different maize varieties were used to study the tillering characteristics and regulations of multi-tiller maize under different plant densities and sowing dates. The results showed that tillers were co-elongated with leaves of main stem, the number of primary tiller (n) and leaf age of main stem (N) had the relationship of n = N-3, the secondary tillering had the same relationship as the primary one. Tillering ability showed significant differences among different maize varieties, Mexican’s tillering ability was the strongest, the maximum tiller number was about 25-40, and Keduo 4 was about 2-4 and then Wuyue 97-1 was about 1-2, however, Zhengdan 958 had no tiller in general. The tillering ability of maize could be affected by sowing date and plant density. Higher temperature and sunlight and lower plant density were favorable to tiller’s development. With the postponement of sowing date, the interval from seeding to tillering became shorter, the growth of tiller’s leaves became quicker, and the maximum tiller number was increased. When sowed on 25 April and 25 June at 45 000 plant ha^{-1} population, the maximum tiller number of the Keduo 4 was 3.50 and 4.00 while the ultimately tiller number was 2.33 and 2.00, respectively, so the eliminating rate of tiller was 33.4% and 50.0% respectively. The similar changes were observed in 30 000 and 60 000 plant ha^{-1} populations. With the increment of plant density, tiller’s occurrence was postponed, and the leaf ages decreased on same day after emergence of seedling, tiller number of main stem with the same leaf age and the maximum and ultimately numbers reduced, the tillers’ eliminating rate increased. When sowed on 25 April, taken the 30 000, 45 000, and 60 000 plant ha^{-1} populations, the maximum tiller number was 3.80, 3.50, and 3.22, and ultimately tiller number was 3.00, 2.33 and 1.67, so the eliminating rate was 21.05%, 33.43%, and 48.14%, respectively. The changes were similar when sowed at 25 June.

Keywords: Multi-tiller maize Tillering characteristics Plant density Seeding time

Received 2011-04-12; published 2011-12-01

Fund:

本研究由山东省现代农业产业技术体系项目，山东省玉米良种工程项目(鲁农良种2010-6)，国家粮食丰产科技工程项目(2011BAD16B09)和公益性行业(农业)科研专项(200903003)资助。

Corresponding Authors: 张吉旺, E-mail：jwzhang@sdau.edu.cn, Tel: 0538-8245838

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
王如芳
张吉旺
吕鹏
董树亭
刘鹏
赵斌