

研究报告

亚种间杂交稻颖花受精率与温度的相关性及其模型分析

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摘要

分析了籼粳杂种、中间型杂种、籼稻和粳稻4种类型水稻15个品种2年分期播种的观测结果,结合对应的逐日气象资料,探讨了温湿度等气象因子对亚种间杂交稻受精率的影响规律,证实了亚种间杂交稻的受精率及其稳定性一般低于籼稻和粳稻.在温度、湿度、日照的11项气象因子中,探明温度是影响受精率的主要气象因子,且以盛花前后5~7 d的日均温影响最大.建立了4种水稻受精率-温度拟合模型,计算出亚种间杂交稻的受精最适温度和安全温度分别为28.2~29.3和23.4~24.3 ℃,比籼稻和粳稻的平均值分别高2.2和1.5 ℃.用旬平均气温24~25 ℃作为亚种间杂交稻的安全齐穗期温度指标分析表明,亚种间杂交稻的安全齐穗期在华南双季稻区为9月下旬~10月上旬,长江中下游稻区提前至9月上旬,江淮一季稻区则在8月下旬~9月上旬.

关键词 [亚种间杂交稻](#),[受精](#),[温度](#),[模型](#)

分类号

Correlation of intersubspecific hybrid rice spikelet fertilization rate with temperature and related statistic model.L

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Abstract

Using four types of rice, i.e., indica?japonica hybrid, intermediate hybrid, indica and japonica cultivars as test materials, this paper studied the sensitivity of intersubspecific hybrid rice to climatic factors, and the correlations between spikelet fertilization rate (SFR) and daily meteorological factors during 2000 and 2001. The results showed that the SFR of intersubspecific hybrids was lower than that of indica and japonica cultivars. Among eleven meteorological factors, temperature was the key factor, and the mean temperature within five or seven days around panicle flower blooming affected the SFR significantly. A comprehensive model of SFR? temperature was established, with which, the fittest temperature and safe temperature for fertilization of intersubspecific hybrids was estimated to be 28.2~29.3 ℃ and 23.4~24.3 ℃, 2.2 ℃ and 1.5 ℃ higher than those of indica and japonica cultivars, respectively. It was suggested that the safe heading date for planting intersubspecific hybrid should be moved up to the last ten-day of September to the first ten-day of October in southern China, the first ten-day of September in middle and lower reaches of Yangtze River Valley, and the last ten-day of August to the first ten-day of September in rice planting area between Yangtze and Huai River.

Key words [Intersubspecific hybrid rice](#) [Fertilization](#) [Temperature](#) [Model](#)

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