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Effects of Nitrogen Management and Planting Density on Grain Yield of Hybrid Rice under No-tillage Condition in Winter Paddy Field

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Abstract: A field experiment was conducted to study the effects of two fertilizer managements (A1, all for basal fertilizer; A2, balance fertilizer management) and planting density (C1, 1.4×10^4 hills/667 m²; C2, 1.1×10^4 hills/667 m²; C3, 0.8×10^4 hills/667 m²) on grain yield and yield components under no-tillage condition in winter paddy field in Southwest China, with three hybrid rice Chuanlvyou642, Rongyou1015 and Gangyou725 as materials. The results showed that the yield of hybrid rice under A1 treatment was decreased by 4.76% compared to A2 treatment, but had no significant difference. The grain yield of hybrid rice was increased with the planting density increasing, C1 treatment was highest, and the yield of Chuanlvyou 642 was highest among three hybrid rice. The high grain yield for Chuanlvyou 642 was associated with high effective panicles. There were significant difference in grain yield among three hybrid rice and three planting densities. Thus it can be seen, choosing strong tillering panicle type rice, appropriate increasing the transplanting density, and adopting all for basal fertilizer, is a feasible approach to achieve high yield and save labor under no-tillage condition in winter paddy field in Southwest China.

Key words: no-tillage; hybrid rice; fertilization mode; planting density; grain yield

·综合信息·

河南省 2016 年审定通过的水稻新品种

审定编号 (豫审稻)	品种名称	类型	选育单位	品种来源	全生育期 (d)	区试产量 (kg/667 m ²)	生试产量 (kg/667 m ²)
2016001	汴稻 1 号	粳型常规稻	河南省开封市农林科学研究院	镇稻 99/ 秋丰	155 ~ 164	653.45	636.60
2016002	新稻 69	粳型常规稻	河南省新乡市农业科学院	新稻 18 号 / 苏北 9 号	151 ~ 157	576.40	600.40
2016003	信粳 18	粳型常规稻	河南省信阳市农业科学院	方欣 1 号 / 镇稻 88	150 ~ 156	578.05	591.90
2016004	Y 两优 800	籼型两系杂交稻	湖南袁创超级稻技术有限公司	Y58S × R800	145 ~ 150	606.30	675.30
2016005	科两优 9	籼型两系杂交稻	湖南科裕隆种业有限公司	科 S/ 湘恢 112-9	146 ~ 149	608.15	671.60
2016006	Y 两优 886	籼型两系杂交稻	河南农业大学	Y88S × 益恢 66	142 ~ 148	605.00	669.30
2016007	Y 两优 808	籼型两系杂交稻	安徽国豪农业科技有限公司	Y58S × 豪恢 808	141 ~ 144	577.25	669.00
2016008	Y 两优 188	籼型两系杂交稻	北京北农睿丰农业科技有限公司	Y58S × R18	141 ~ 144	601.15	676.20
2016009	广两优 9826	籼型两系杂交稻	河南省信阳市旺达种业有限公司	广占 63-4s × 信丰 9826	146 ~ 151	609.40	688.90
2016010	信优糯 5533	籼型三系杂交糯稻	河南省信阳市农业科学院	信 3122Awx × 信糯恢 5533	140 ~ 145	593.50	668.50

(中稻宣)