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Improving the Field Emergence Performance of Super Sweet Corn by Sand Priming

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Abstract: A priming method called sand priming was developed using sand as a priming solid matrix. The effect of sand priming on improving the field emergence performance of five super sweet corn cultivars was investigated. Sand priming significantly improved field emergence performance of all super sweet corn cultivars, and there was marked improvement by priming at 20°C for 24 hr. After sand priming at 20°C for 24 hr, field emergence percentage (FEP) of “Green Superman”, “Huatian 1”, “Yangtian 1”, “Mitian 8”, and “Chaotian 43” was increased by 52.1%, 37.5%, 38.0%, 40.9%, and 33.3%, respectively. Their field emergence speed (FES) was 2.3, 1.8, 2.0, 2.0, and 1.8 times of the control, respectively. To further elucidate the effect of sand priming on improving the field emergence performance of super sweet corn, we analyzed the membrane system integrity, α -amylase activity and protein content. Sand priming at 20°C for 24 hr improved membrane system integrity and α -amylase activity in all super sweet corn cultivars. Furthermore, sand priming at 20°C for 24 hr accelerated the degradation of embryo protein after 1 d germination in “Green Superman”.

Keywords: [\$\alpha\$ -amylase](#), [Electrolyte leakage](#), [Embryo protein](#), [Field emergence performance](#), [Sand priming](#), [Super sweet corn](#)

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