

Pittayaporn Supornpath 2007: Growth and Drought Tolerance in Sweet Corn Hybrids.

Master of Science (Botany), Major Field: Botany, Department of Botany.

Thesis Advisor: Associate Professor Prasart Kermanee, Ph.D. 180 pages.

The main objective of these studies were to compare the effect of water stress on fresh yield, eating quality, agronomic traits and other characteristic of sweet corn hybrids in the *sh2* and *bt1* group. The studies were investigated in dry season (December 2002-March 2003) at the National Corn and Sorghum Research Center, Pakchong District, Nakhon Ratchasima Province. Two experiments of shrunken-2 (*sh2*) and brittle-1 (*bt1*) sweet corn hybrids were separately tested under water stress and non-stress environments in a randomize complete block design with 12 treatments (varieties) and four replications. For non-stress, water was supplied every week. For water stress, no irrigation was managed at 25 - 42 days after emergence (DAE) and 55 DAE to harvest date at 20 days after days to 50% silk. Water deficit reduced 14% of green ear weight, 10 - 12 % of yellow ear weight, 11-13% of usable ear weight and 8-13% of number of good ears. Eating quality were decreased in sweetness in the *sh2* group and and tenderness in the *bt1* group. Water deficit significantly reduced plant height and ear height and 14 - 22% of leaf area index. It can be identified four drought tolerant hybrids in each of the *sh2* group (KSSC505, KSSC506, KSSC513 and Unisweet 1) and the *bt1* group (KSSC561, KSSC562, KSSC576 and KSSC582) which gave yield loss less than 10% with drought indexes > 1.0. In non-stress and stress environments, both groups of the *sh2* and *bt1* sweet corn hybrids revealed that green ear weight had significantly positive correlations with yellow ear weight, usable ear weight, number of kernel rows and ear height. Yellow ear weight gave significantly positive correlations with usable ear weight and ear height. Plant height had highly significantly positive correlation with ear height. Moreover, tenderness possessed highly significant positive correlation with flavor.

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Thesis Advisor's signature

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