Eight hybrids which derived from crosses between super sweet corn ($sh_2sh_2$) and field corn ($Sh_2Sh_2$) and 1 SCMV resistant line were selectively crossed. The derived 5 double-cross hybrids were selfed and the 2 three-way cross hybrids were backcrossed to $sh_2sh_2$/$Sh_2Sh_2$ parents. The derived $S_1$ and BC shrunken lines were selectively full sibbed within each family and subjected to each selection method : alternate $S_1 \sim$ full sib ($S_1\sim$FS), alternate $S_1 \sim$ half sib ($S_1\sim$HS) and selective mass sibbing (SMS). After 2 cycles of selection, the selected lines were crossed in all possible combination within each group as well as between groups (factorial cross) as designed. General performances and combining ability of each composite-sibbed line were determined.

In general, each selection method : $S_1 \sim$ FS, $S_1 \sim$ HS and SMS rendered lines with similar average performances for yields and combining ability but the highest yield and high uniformity lines came from $S_1\sim$FS selection. Combinations of the lines which gave hybrids with highest yield tended to have low quality especially sweetness. However, combinations of the lines which produced hybrids with relatively high yield and high quality derived from parents of related genetic background. Interaction between yield, quality and environment is obvious. Therefore, yield trials of hybrids in each growing season are needed. Because of very specific group of gene interaction for quality of sweet corn, introduction of exotic germplasm into breeding program must be done with care. The alternate selection of selfs and crosses is a balance selection method for the benefit of additive and non-additive gene effects in composite-sibbed lines and hybrids.

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      Student's signature        Thesis Advisor's signature