Abstract

The effect of cytoplasmic male sterility of maize received a great deal of attention as an inexpensive means of producing hybrid seed of high genetic purity. Several investigations concentrated on possible changes in general agronomic performance with special emphasis on grain yield. Some authors reported a no or inconsistent increases in grain yield as a result of cytoplasmic male sterility (cms) (Duvick, 1957; Josephson et al., 1978, Kálmán et al., 1985; Sangoi and Salvador, 1996; Voichita Has et al., 2001; Weingartner et al., 2002) investigated male-sterile inbreds and their single-crosses and found that the most of the male-sterile inbreds outperformed their normal fertile counterparts, while differences in grain yields, due to the different cytoplasms, were inconsistent with hybrids. Increases in grain yield as a result of male sterility were observed under stress conditions such as narrow spacing and varying amounts of N fertilizer, water supply (Voichita Has et al., 1989; Miku and Partas, 1990; Stamp et al., 2000). Negative effects of male sterility on grain yield have been reported (Noble and Russell, 1963). The potential of some male sterile hybrids to produce consistently higher yields have been neglected for past decades; however, a positive impact on yield was found in the studies of some authors (Kálmán et al., 1985; Has et al., 2002; Stamp et al., 2000; Weingartner et al., 2002).

There will always be an interest in inexpensive, pure genetic seeds. Thus, we consider the use of male sterile maize with regard to grain yield in this study.

Key words: maize seed production, male-sterility, grain yield