LEWELLEN, R. T.*, and I. O. SKOYEN. USDA-ARS, 1636 E. Alisal St., Salinas, CA 93905. - Screening for bolting tendency within sugarbeet populations. It may be feasible to use a nonbolting, annual (*BB*), CMS inbred line of sugarbeet (*Beta vulgaris* L.) as a tester to evaluate and screen genotypes for bolting tendency. Based upon tests involving lines with known but extremes in bolting tendency, a good association occurred between the lines in overwintered tests and their corresponding annual testcrosses under long-day greenhouse conditions. It remained uncertain whether this evaluation procedure would be critical enough to sort genotypes within a breeding line. Plants from two lines were randomly selected, selfed to produce S_1 lines and crossed to annual C600CMS. S_2 lines were obtained from some S_1 lines. Annual testcrosses were evaluated for bolting in greenhouse and field tests under long-day conditions. Biennial S_1 and S_2 lines were evaluated for bolting in conventional fall planted field trials. Testcrosses evaluated in the greenhouse showed wide dispersion for bolting but not when tested under long-day field conditions. S_1 lines in an over-wintered test ranged from 0 to 91% bolted. Bolting tendency of S_2 lines had good association with their S_1 source but continued to show wide differences within sets from a common S_1 line. The testcrosses evaluated in the greenhouse showed agreement with their corresponding S_1 and S_2 lines evaluated under overwintered conditions, but there were some major discrepancies. Usually though, the very slow bolting testcrosses identified the very nonbolting S_1 lines and S_2 lines that showed little additional segregation for bolting.

WANG, JIZHI, HANQING LI*, DEDONG GUO, and SHUBIAO JIA. Institute of Biology, Heilongjiang University, Harbin 150080, People's Republic of China. - Development of new male sterile cytoplasms of sugar beet. Some new ms cytoplasms were obtained by the following interspecific hybridizations: *Beta patula* Ait. X *B. cicla* L. Turkey; *B. cicla* Turkey X *B. patula*; and *B. cicla* China X *B. patula*. The ms plants were segregated from hybrid progenies. Three new ms cytoplasms, named P, CT, and CC, were developed by continuous backcrossing for 7-8 generations with *B. vulgaris* Shuangfeng. Male sterility displayed maternal inheritance. Most hybrid progenies for crosses of ms plants with *B. vulgaris* were male sterile. Restoring genes exist in *B. patula* or *B. cicla*. These ms cytoplasms were different in pollen degeneration. P-type ms cytoplasm possessing good economic characteristics has been used in production. It is suggested that it could become a substitute or supplement for s-type ms cytoplasm.