

THEURER, J. C.* USDA, Agricultural Research Service, Department of Crop and Soil Sciences, Michigan State University, E. Lansing, MI 48824-1325. Comparison of smooth taproot sugarbeet versus standard taproot cultivars at different plant densities.

Smooth root beets have the advantage of being harvested with less soil adhering to the roots, which is primarily because of the lack of the two grooves with numerous fibrous and branched roots typical of standard root type cultivars. The question arises as to the ability of smooth root types to develop adequate fibrous root systems to maintain optimal plant growth under water stress that could occur with today's desired high plant densities. Field experiments were conducted in central Michigan over three years to compare smooth root types with commercial cultivars in 28 (standard), 22, 20, 18, and 14-inch row spacings. In all experiments, smooth root lines had typically the highest root yield, and the commercial varieties had significantly higher sugar percentage at all row spacings. Smooth root lines showed parallel response to that of the commercial cultivars and no adverse effects under high density planting.

WANG, GUIZHI, HANQING LI*, and DEDONG GUO. Institute of Biology, Heilongjiang University, Harbin 150080, People's Republic of China. - The acquirement of four sugar beet monosomic additions and observations of their meiotic behavior.

Four monosomic additions with *B. patula* chromosomes were segregated from progenies obtained by interspecific crosses of three related species: (*B. patula* X *B. cicla*)F₁ X *B. vulgaris*. Observations were made on plant morphology, meiotic behavior, and alien chromosome characteristics of the monosomic additions. Plant PT5-1 displayed the red leaf-vein characteristic of *B. patula*. Cytological studies showed its alien chromosome to be the No. 9 chromosome of *B. patula*. The frequencies of meiotic diakinesis 9II+1I ranged from 90.30-97.69%, which were significantly different from the sugar beet primary trisomic. A few trivalents occurred. The frequency of 9II+1I at MI was somewhat higher. Frequencies of the 1+9+9 configuration at MII were 33.62-63.6%. The transmission rate of monosomic additions was rather low.

GUO, DEDONG*, JIZHI WANG, YUHUA MAN, and SHUBIAO JIA. Institute of Biology, Heilongjiang University, Harbin 150080, People's Republic of China. Preliminary investigations of *Beta cicla* L. China.

Beta cicla L. China, as a winter vegetable used by farmers, is widely distributed in China, from the Yellow River in the north to the Pearl River in the south. This type of leaf beet in China has been cultivated for more than 1600 years. It has undergone acclimatization in many parts of the country, and local types may have evolved. Fourteen specimens of *B. cicla* L. China, collected from Huaiyin, Wuxi, Hangzhou, Hengyang, Zhenzhou, Yicang, Chengdu, and Jianyang, were grown and observed in Harbin. Preliminary observations suggested that these specimens are different from *B. cicla* L. Turkey. Each of the specimens seemed to be from a population with different variations, e.g., annual/biennial growing habits and their intertypes; fertile and sterile pollen; sugar content; root and leaf types; disease resistance; etc. Investigations showed *B. cicla* L. China to be a primary material of high potential in its utility that needs further study.