SMIGOCKI, ANN*, GORDON W. SNYDER, IRIS McCANNA, and LOWELL D. OWENS, USDA, ARS, Plant Molecular Biology Laboratory, Beltsville, MD 20705. Transgenic sugarbeets engineered for production of high cytokinin levels in the taproot.

Cambial initiation and rapid cell division periods in the developing sugarbeet taproot have reportedly been correlated with increased cytokinin levels. To evaluate the effect of increased endogenous cytokinin concentrations on vascular ring development and assimilate transport to the taproot, a bacterial cytokinin biosynthesis gene (*ipt*) was introduced into sugarbeets. To target expression of the *ipt* gene to the taproot, it was fused with a tuber-specific promoter from the patatin gene of potato. Particle bombardment was used to introduce the reconstructed *ipt* and a kanamycin-selectable marker gene into embryogenic hypocotyl callus. Shoots regenerated on kanamycin-containing medium required high auxin concentrations (3 mg IBA and 2 mg NAA per liter) for root initiation, presumably to compensate for the elevated cytokinin levels. One rooted transformant appeared normal except for a slight increase in adventitious shoot development. Another transformant was more difficult to root and exhibited other characteristic cytokinin effects, namely reduced apical dominance and dark green leaves. Southern blots of PCR products digested with various restriction enzymes confirmed the presence of the *ipt* and NPTII genes in these two transformants. Transgenic plants are being further analyzed for expression of the cytokinin gene and sucrose content.