

Eckhoff, J.L.A., and J.W. Bergman, Montana Agricultural Experiment Station,  
Eastern Agricultural Research Center, PO Box 1350, Sidney, MT 59270. -  
Strip tillage for seedbed preparation of irrigated sugarbeets.

Seedbed preparation for sugarbeets can result in bare soil with little protection against erosion. Strip tillage is one way to conserve residue on the soil surface while preparing a sugarbeet seedbed. Strip tillage and conventional tillage of plowing, mulching, and leveling were compared at MSU Eastern Agricultural Research Center in Sidney, MT, under furrow flood irrigation. Half the field was strip tilled and half the field was conventionally tilled. In the strip tillage system, small grain produced in the year previous to sugarbeets was grown on corrugations and furrow irrigated. After grain harvest, the field was irrigated and weeds were sprayed with glyphosate. In late fall, 8-inch strips were tilled on the tops of the beds, leaving 16 inches of standing stubble between strips. Ethofumesate was incorporated when the strips were tilled. Sugarbeets were planted to stand directly into the tilled strips the following spring. Stubble between the rows was strip tilled after emergence and sugarbeets were cultivated conventionally. Several nitrogen rates and schedules were tested. Root yield, sucrose content, and impurities were measured, and gross sucrose yield and estimated sucrose yield were calculated. Strip tillage produced higher quality sugarbeets yielding less than the conventionally produced sugarbeets. Sucrose yields did not differ. Amino-N content was significantly lower under strip tillage. These studies indicate that strip tillage can be used as a conservation tillage method for sugarbeets. Studies to improve reduced tillage methods for sugarbeet production are continuing.