

Zero Tillage For Corn Crop Is Researched

"Zero Tillage" may become a standard practice of some humid-area corn growers if results of preliminary research are borne out in further studies.

The term describes an experimental system of planting corn on grass or grass-legumes sod, with all usual plowing and cultivating eliminated. The sod, killed with herbicides prior to corn planting, re-

mains as a protective mulch through the growing season.

Corn production without tillage is under study by ARS soil scientists, in cooperation with the Cornell University and Virginia Agricultural Experiment Stations. Their research indicates zero tillage has important soil conservation advantages. And corn yields (up to 140 bushels per acre in Virginia and 128 bushels in New York) on no-tillage plots were not significantly different from yields on conventionally prepared soil.

The scientists are not yet ready to recommend zero

tillage. Although early studies indicate several advantages, there are problems not yet fully resolved.

ADVANTAGES

1. Only two farming operations are required — application of early-season herbicide spray and planting.

2. Killed sod acts as a mulch during the growing season, restricting runoff and evaporation. In the Virginia experiments, available soil moisture to an 18-inch depth was greater with no tillage than with conventional tillage.

3. The mulch from the preceding grass crop reduces soil erosion.

may be a problem. The practice has not been tested in extensive field trials.

In the Virginia experiments, tillage operations were completely eliminated. The corn was hand-planted, in orchard-grass sod, in holes made with a small soil sampling tube. The sod had been killed 5 weeks earlier by spraying with 4 pounds (active ingredient) of atrazine per acre. The plots were fertilized with 1,000 pounds of 10-10-10 per acre, broadcast after planting.

In the New York experiments, the corn was planted in narrow strips cut in the sod by a conventional corn planter, following a good alfalfa-grass crop. The scient-

ists killed the sod 6 weeks before planting the corn by spraying a mixture of 3 pounds of atrazine and 2 pounds of aminotriazole per acre. The plots were fertilized with 1,000 pounds of 10-10-10 per acre. Eighty percent of the fertilizer was applied as a topdressing before planting, and 20 percent was applied as a topdressing before planting, and 20 percent was applied in bands with a conventional seeder at planting time.

Defective flues and heating systems head the list of causes of home fires. Farm safety specialists suggest you check your home heating plant frequently and make any needed corrections promptly.

PROBLEMS

1. No completely satisfactory equipment is available for planting corn in sod.

2. Herbicides used for killing the sod may interfere with the establishment of oats or other crops following corn. In limited tests in Virginia, however, scientists were able to establish small grains, orchardgrass, and alfalfa after corn had been produced in sod killed by herbicides. Weeds that are resistant to the herbicide may also present special problems.

3. Plow-down applications of fertilizer are impossible with zero tillage. Fertilizer must be spread before corn is planted or added in the row at planting time.

4. Soil type and management of the preceding sod crop may limit the use of zero tillage. Soil compaction by grazing animals, for example,

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