

Farming organic soils of the Delta

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Farming the Delta's high-organic (peat, muck) soils provides a grower with a unique set of problems and limitations. Today, the most widely grown crop on these organic soils is field corn. The next most common are wheat, barley, and asparagus. Sunflowers are the Delta's most colorful crop. Potatoes, once widely grown, have lost their importance, as has grain sorghum. Minor vegetable crops—carrots, radishes, and onions—are occasionally found, as are alfalfa and sugar beets.

Plants usually grow well on peat soils, which warm up early in spring because their dark color absorbs heat. With warm weather, they mineralize relatively large quantities of nitrogen. Peat soils, light and nonabrasive, are easy to work, with relatively low power requirements for machinery and little wear on tillage equipment. Often, they can be worked early in spring or shortly after a rain.

There are, however, problems that go along with the advantages. Not only do crops grow well; so do weeds. Weeds start early and have a ready supply of nutrients and moisture all season. For this reason, the crops grown most widely in the Delta must be tolerant of at least some post-emergence herbicides and must generally compete well against weeds.

Water storage

Peat soils have a high water-holding capacity and conduct water well. High water tables are common in the Delta, and some areas may remain so wet that even the peat soils cannot be worked in early spring. Excessive moisture may create anaerobic conditions in the soil, leading to denitrification and consequent nitrogen deficiency early in the season.

At the other extreme, the soil may dry out at the surface, creating fine organic



Dark organic soils of the Delta warm up rapidly in the spring, permitting early production of asparagus.



In preparation for the first irrigation of the season, a trencher cuts a spud ditch through a corn field in Delta peatlands.

dust picked up by spring winds. Clouds of peat dust for many miles downwind were of serious concern some years ago, but they are generally under control today. However, dusty conditions continue to make labor recruitment difficult, and air-conditioned cabs on farm equipment have become common.

Subsurface irrigation by means of spud ditches is commonly used in Delta peat soils (See page 5.) This system, so well adapted to shallow-rooted crops, also creates problems. By raising the water table, it rots the lower roots and accumulates salts near the soil surface during the cropping season. These salts may be leached out by winter rains and flooding.

Nutrient requirements

The nutrient most often deficient in peat soils is phosphorus, followed by zinc and potassium. Under wet conditions, where denitrification occurs, nitrogen responses have been recorded. In addition, nitrogen is increasingly needed in areas where the peat overlying mineral soils has oxidized away and insufficient nitrogen is released from the organic material for crop production. When fertilizers are applied, they are banded under the seeds. The high amounts of nitrogen available in peat soils, especially later in the season, mean that sugar beet crops generally have high yields but relatively low sugar content.

For most crops Johnsongrass, a perennial weed, is a severe problem. Other weeds include annual grasses, annual and perennial broad-leaved weeds, and nutsedge. Rotating corn with winter cereals, such as wheat or barley, gives growers an opportunity to plow, disc, and flood Johnsongrass-infested fields during summer. In severe cases, two years of wheat before returning to corn have been helpful. Herbicides used on corn and wheat are chosen to complement the competitive cover provided by these two crops.

In past years, burning the top layer of peat soils destroyed weed seeds and disease organisms, and provided potassium. The practice of burning has been discontinued, and other weed and disease control methods are used today.

Asparagus, no longer a major crop, is still important in both peat and mineral areas. The heat-absorptive capacity of peat soils promotes early yields. In the 1930s, white celery was a big crop; with changes in taste and better yields elsewhere, it is no longer grown. Potatoes were also once important, but today only a remnant of the former acreage produces market and seed potatoes.

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