Computers are of tremendous assistance in handling huge amounts of data. The computerization of soil survey data is proceeding at a rapid rate. Most of the data on soils is being manipulated by computers for calculations, classification, correlation, and interpretation—and the computerization trends will continue at an accelerated rate in the future. Most of the details of explanation of the computer systems are in the process of being written for the National Soils Handbook of the Cooperative Soil Survey. The National Soils Handbook is in a state of continual progress and revision, and is available through the local District office and the State office of the Soil Conservation Service, as well as the office of each soil survey representative of the Agricultural Experiment Stations and other contributors to the Cooperative Soil Survey. It is a very lengthy and detailed mimeographed technical manual, and only a small part of the content will be discussed in this chapter.

The most basic data of the Cooperative Soil Survey are the technical soil series descriptions by which each soil is defined and mapped; more than 11,000 soil series were defined and mapped by 1980. Table 28 is an example of the official description for the Norfolk series formed in loamy Coastal Plains sediments from North Carolina to Texas. The Norfolk series is classified as a fine-loamy, siliceous, thermic Typic Paleudult according to Soil Taxonomy (Soil Survey Staff, 1975). The “type location” is in Robeson County, North Carolina, and the range in characteristics is defined for the permissible deviations from the typical. Competing series are given for the geographic setting on the Coastal Plain, and associated soils are listed for those landscapes. Norfolk soils are well drained, and the permeability is moderate. Land use includes cropping for corn, cotton, peanuts, tobacco, and soybeans and original vegetation was pines and mixed hardwoods. The series was first established and mapped in Cecil County, Maryland, in 1900, but many refinements have been made in the description of the soil since 1900. Under “Remarks” is a brief discussion of the history of the classification and definition (description) of the soil. Additional data about the soil includes some references with results of chemical analyses, descriptions, and other information. Format for encoding the technical descriptions for computers are given in the National Soils Handbook. The State of Montana has published a separate booklet on the automated data-processing system for soil inventories in use in that state (Decker et al., 1975). The computer system for soil descriptions use “mark sense forms,” which enable cards to be marked with graphite pencils in the field, and then read by electronic scanner machines for recording the soil profile description data into the computer systems.
TABLE 28  Official soil series description for the Norfolk series

The Norfolk series consists of deep, well drained, moderately permeable soils that formed in loamy Coastal Plains sediments. These upland soils have slopes ranging from 0 to 10%.

**Taxonomic Class:** Fine-loamy, siliceous, thermic Typic Paleudults.

**Typical Pedon:** Norfolk loam sand—cultivated.

(Colors are for moist soil unless otherwise stated.)

- **Ap—**0 to 9 in.; grayish brown (10YR 5/2) loamy sand; weak fine and medium granular structure; very friable; few fine and medium roots; some darker-colored material in old root channels; strongly acid; clear smooth boundary. (3 to 10 in. thick)
- **A2—**9 to 14 in.; light yellowish brown (10YR 6/4) loamy sand; weak medium granular structure; very friable; few fine and medium roots; some darker-colored material in old root channels; strongly acid; clear smooth boundary. (3 to 10 in. thick)
- **B1—**14 to 17 in.; yellowish brown (10YR 5/6) sandy loam; weak medium subangular blocky structure; friable; few fine and medium roots; strongly acid; clear wavy boundary. (2 to 5 in. thick)
- **B2t—**17 to 38 in.; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; thin discontinuous clay films on faces of peds; very friable; few fine and medium pores; strongly acid; gradual wavy boundary. (12 to 24 in. thick)
- **B22—**38 to 58 in.; yellowish brown (10YR 5/6) sandy clay loam; few fine faint mottles of strong brown, pale brown, and yellowish red; weak medium subangular blocky structure; friable; thin discontinuous clay films on faces of peds; strongly acid; gradual wavy boundary. (18 to 24 in. thick)
- **B23—**58 to 70 in.; yellowish brown (10YR 5/6) sandy clay loam; common medium distinct mottles of yellowish red (5YR 5/8), pale brown (10YR 6/3), and light brownish gray (10YR 6/2); weak medium subangular blocky structure; friable; few firm yellowish red plinthite nodules; strongly acid; gradual wavy boundary. (10 to 18 in. thick)
- **B3—**70 to 82 in.; mottled brownish yellow (10YR 6/6), strong brown (7.5YR 5/6), yellowish red (5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; approximately 5% firm, brittle nodules of plinthite; strongly acid; gradual wavy boundary. (9 to 15 in. thick)
- **C—**82 to 100 in.; mottled red (2.5YR 4/8), strong brown (7.5YR 5/8), brownish yellow (10YR 6/4), and gray (10YR 5/1) sandy clay loam; massive; friable; strongly acid.

**Type Location:** Robeson County, North Carolina; 1 1/2 miles south of Parkton; 300 ft. west of State Road 1724 and 60 ft. south of farm road.

**Range in Characteristics:** The loamy textured horizons commonly extend 60 to 90 in. below the soil surface. Few to about 5% small rounded siliceous pebbles are on the surface and throughout the soil in some pedons. Reaction is strongly acid or very strongly acid, except where limed. Mottles, associated with seasonal wetness, range from about 36 to 60 in. below the surface.

The A1 horizon ranges from gray to dark grayish brown in hues of 10YR or 2.5Y.

The A2 horizon is very pale brown (10YR 7/3, 7/4), pale brown (10YR 6/3), light yellowish brown (10YR 6/4; 2.5Y 6/4), or yellowish brown (10YR 6/4).

The Ap horizon ranges from grayish brown (10YR 5/2) in uneroded pedons to yellowish brown (10YR 5/4) or light yellowish brown (10YR 6/4) in eroded pedons. The A horizon is centered on loamy sand, and includes fine sandy loam and sandy loam.

The B1 horizon is light yellowish brown (10YR 5/4; 2.5Y 6/4), or yellowish brown (10YR 5/4, 5/6, 5/8) sandy loam, or sandy clay loam.

The B2t horizon is commonly brownish yellow (10YR 6/6, 6/8), or yellowish brown (10YR 5/6, 5/8), and ranges to strong brown (7.5YR 5/6, 5/8) or light olive brown (2.5Y 5/4, 5/6). The B2t horizon centers on sandy clay loam, and includes sandy loam and clay loam.

The B3 horizon is mottled brownish yellow, strong brown, yellowish red, red, and gray sandy loam, sandy clay loam, clay loam or clay. This horizon in some pedons contains firm, brittle strong brown to red peds or nodules of plinthite, but no horizon within 60 in. of the soil surface has as much as 5% plinthite.

The C horizon is commonly mottled red, strong brown, brownish yellow, and gray loamy soil materials, that is variable and may include sand or clay.

**Competing Series:** These are the Addielou, Allen, Avilla, Bama, Etowah, Holston, Leesburg, Minvale, Nella, Orangeburg, Pikeville, Ruston, and Smithdale series. Addielou soils have A horizons thicker than 20 in. Allen, Bama, Etowah, Nella, Orangeburg, Ruston, and Smithdale soils have all or some