

Map Unit Description

Weld County, Colorado, Southern Part

79 Weld loam, 1 to 3 percent slopes

Setting

Elevation: 4850 to 5000 feet
Mean annual precipitation: 13 to 17 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 100 to 155 days

Composition

Weld and similar soils: 80 percent
Minor components: 20 percent

Description of Weld

Setting

Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits

Properties and Qualities

Slope: 1 to 3 percent
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low or moderately high (0.06 to 0.20 in/hr)
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate maximum: 6 percent
Gypsum maximum: 0 percent
Available water capacity: High (about 10.2 inches)

Interpretive Groups

Land capability classification (irrigated): 2e
Land capability (non irrigated): 3e
Ecological site: Loamy Plains (R067BY002CO)

Typical Profile

0 to 8 inches: loam
8 to 15 inches: clay
15 to 60 inches: silt loam
60 to 64 inches: silt loam

Minor Components

Keith

Percent of map unit: 7 percent

Wiley

Percent of map unit: 7 percent

Adena

Percent of map unit: 6 percent

Map Unit Description

Detailed Soil Map Units

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description indicates the composition of the map unit and selected properties of the components of the unit.

Soils that have profiles that are almost alike make up a "soil series." Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into "soil phases." Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A "complex" consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An "association" is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An "undifferentiated group" is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include "miscellaneous areas." Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

the limited capacity of this soil to support a load. Capability class I irrigated.

82—Wiley-Colby complex, 1 to 3 percent slopes. This nearly level map unit is on smooth plains in the western part of the survey area at elevations of 4,850 to 5,000 feet. The Wiley soil makes up about 60 percent of the unit, and the Colby soil about 30 percent. About 10 percent is Heldt silty clay and Weld loam.

The Wiley soil is deep and well drained. It formed in calcareous eolian deposits. Typically the surface layer is pale brown silt loam about 11 inches thick. The subsoil is pale brown silty clay loam about 23 inches thick. The substratum to a depth of 60 inches is very pale brown silty clay loam.

Permeability is moderately slow. Available water capacity is high. The effective rooting depth is 60 inches or more. Surface runoff is medium, and the erosion hazard is moderate.

The Colby soil also is deep and well drained and formed in calcareous eolian deposits. Typically the surface layer is pale brown loam about 7 inches thick. The underlying material is very pale brown silt loam to a depth of 60 inches.

Permeability is moderate. Available water capacity is high. The effective rooting depth is 60 inches or more. Surface runoff is medium, and the erosion hazard is moderate.

This map unit is used for irrigated and nonirrigated cropland and for rangeland, wildlife habitat, and urban development.

In irrigated areas these soils are suited to all crops commonly grown in the area, including corn, sugar beets, beans, alfalfa, small grain, and onions. An example of a suitable cropping system is 3 to 4 years of alfalfa followed by corn, corn for silage, sugar beets, small grain, or beans. Land leveling, ditch lining, and installing pipelines may be needed for proper water applications.

All methods of irrigation are suitable, but furrow irrigation is the most common. Barnyard manure and commercial fertilizer are needed for top yields.

In nonirrigated areas these soils are suited to winter wheat, barley, and sorghum. Most of the acreage is planted to winter wheat. The predicted average yield is 28 bushels per acre. The soil is summer fallowed in alternate years to allow moisture accumulation. Generally precipitation is too low for beneficial use of fertilizer.

Stubble mulch farming, stripcropping, and minimum tillage are needed to control soil blowing and water erosion. Terracing also may be needed to control water erosion.

The potential native vegetation is dominated by blue grama. Several mid grasses such as western wheatgrass and needleandthread are also present. Potential production ranges from 1,600 pounds per acre in favorable years to 1,000 pounds in unfavorable years. As range condition deteriorates, the mid grasses decrease; blue grama, buffalograss, snakeweed, yucca and fringed sage increase; and forage production drops. Undesirable weeds and annuals invade the site as range condition becomes poorer.

Management of vegetation on this soil should be based on taking half and leaving half of the total annual production. Seeding is desirable if the range is in poor condition. Sideoats grama, little bluestem, western wheatgrass, blue grama, pubescent wheatgrass, and crested wheatgrass are suitable for seeding. The grass selected should meet the seasonal requirements of livestock. It can be seeded into a clean, firm sorghum stubble or it can be drilled into a firm prepared seedbed. Seeding early in spring has proven most successful.

Windbreaks and environmental plantings are generally well suited to these soils. Cultivation to control competing vegetation should be continued for as many years as possible following planting. Trees that are best suited and have good survival are Rocky Mountain juniper, eastern redcedar, ponderosa pine, Siberian elm, Russian-olive, and hackberry. The shrubs best suited are skunkbush sumac, lilac, Siberian peashrub, and American plum.

Openland wildlife, such as pheasant, mourning dove, and cottontail are best suited to these soils. Wildlife habitat development, including tree and shrub plantings and grass plantings to serve as nesting areas, should be successful without irrigation during most years. Under irrigation, good wildlife habitat can be established, benefiting many kinds of openland wildlife.

The Wiley soil has only fair potential for urban and recreational development. Slow permeability, moderate shrink-swell potential, and limited bearing capacity cause problems in dwelling and road construction. The Colby soil has good potential for urban and recreational development. Road design can be modified to compensate for the limited capacity of this soil to support a load. Capability subclass IIe irrigated, IVe nonirrigated; Loamy Plains range site.

83—Wiley-Colby complex, 3 to 5 percent slopes. This gently sloping map unit is on plains at elevations of 4,850 to 5,000 feet. The Wiley soil makes up about 60 percent of the unit, and the Colby soil about 30 percent. About 10 percent is Heldt silty clay and Weld loam.

The Wiley soil is deep and well drained. It formed in calcareous eolian deposits. Typically the surface layer is pale brown silt loam about 11 inches thick. The subsoil is pale brown silty clay loam about 23 inches thick. The substratum to a depth of 60 inches is very pale brown silty clay loam.

Permeability is moderately slow. Available water capacity is high. The effective rooting depth is 60 inches or more. Surface runoff is medium to rapid, and the erosion hazard is moderate.

The Colby soil also is deep and well drained and formed in calcareous eolian deposits. Typically the surface layer is pale brown loam about 7 inches thick. The underlying material is very pale brown silt loam to a depth of 60 inches.

Permeability is moderate. Available water capacity is high. The effective rooting depth is 60 inches or more. Surface runoff is medium to rapid, and the erosion hazard is moderate.