

LOCATION KLOSSNER MN
Established Series
Rev. TCJ-KDS-AGG
05/2001

KLOSSNER SERIES

The Klossner series consists of very deep, very poorly drained soils formed in well decomposed organic material 16 to 50 inches thick overlying loamy deposits on moraines, till plains, lake plains, flood plains, and hillside seep areas. They have moderately slow to moderately rapid permeability in the organic material, and moderate or moderately slow permeability in the loamy material. Slopes range from 0 to 8 percent. Mean annual precipitation is about 28 inches. Mean annual temperature is about 47 degrees F.

TAXONOMIC CLASS: Loamy, mixed, euic, mesic Terric Haplosaprists

TYPICAL PEDON: Klossner muck - with a 1 percent slope in a cultivated field. (Colors are for moist soil unless otherwise stated.)

Oap--0 to 10 inches; black (N 2/0) muck, very dark gray (10YR 3/1) dry; about 20 percent fiber, less than 5 percent rubbed; weak fine subangular blocky structure; very friable; many very fine roots; moderately acid; abrupt smooth boundary.

Oa--10 to 26 inches; black (10YR 2/1) muck, dark gray (10YR 4/1) dry; about 60 percent fiber, about 6 percent rubbed; weak fine subangular blocky structure; very friable; many very fine roots; moderately acid; gradual smooth boundary. (Combined thickness of O horizon is 16 to 50 inches.)

2A1--26 to 36 inches; black (N 2/0) mucky silty clay loam; weak medium subangular blocky structure; friable; few very fine roots; slightly acid; gradual smooth boundary.

2A2--36 to 48 inches; black (N 2/0) silty clay loam; massive; friable; few dark reddish brown (5YR 3/4) iron oxide concentrations in root channels; about 1 percent gravel; neutral; gradual wavy boundary. (Combined thickness of 2A horizon is 8 to 45 inches thick.)

2Cg1--48 to 65 inches; olive gray (5Y 5/2) clay loam; massive; friable; dark reddish brown (5YR 3/4) Fe oxide concentrations in root channels; many medium prominent yellowish brown (10YR 5/6) Fe concentrations; about 1 percent gravel; slightly effervescent; slightly alkaline; gradual wavy boundary.

2Cg2--65 to 80 inches; gray (5Y 5/1) loam, massive; friable; many medium prominent light olive brown (2.5Y 5/4) and yellowish brown (10YR 5/4) Fe concentrations; about 3 percent gravel; slightly effervescent; slightly alkaline.

TYPE LOCATION: Nicollet County, Minnesota; 2600 feet north and 2300 feet east of the southwest corner, sec. 12, T. 110 N., R. 28 W.; USGS Nicollet quadrangle; lat. 44 degrees 20 minutes 53 seconds N. and long. 94 degrees 8 minutes 28 seconds W., NAD27.

RANGE IN CHARACTERISTICS: The thickness of the organic material ranges from 16 to 50 inches. It is derived primarily from herbaceous plants. The organic matter content ranges from 25 to 60 percent in the organic surface and 5 to 20 percent in the 2A horizon. The reaction of the organic material ranges from moderately acid to slightly alkaline. Some organic layers contain free carbonates.

The O horizon has hue of 10YR, 5YR, or is neutral, value of 2 or 3 and chroma of 0 to 2. It is dominantly muck (sapric material) however, some pedons have thin layers of hemic material, less than 10 inches thick.

Some pedons have highly organic mineral plow layers.

The 2A horizon has hue of 10YR, 2.5Y, 5Y or is neutral, value of 2 or 3 and chroma of 0 to 1. It is loam, silt loam, sandy clay loam, silty clay loam, clay loam or mucky modifiers of these textures. It is moderately acid to slightly alkaline. Some pedons contain thin layers of coprogenous earth.

The 2Cg horizon has hue of 10YR, 2.5Y, 5Y, 5GY, or is neutral, value of 2 to 7 and chroma of 0 to 2. It is loam, silt loam, silty clay loam, clay loam, sandy clay loam, sandy loam or fine sandy loam, or their gravelly or cobbly analogues. It is slightly acid to moderately alkaline. The upper 12 inches of this horizon averages less than 35 percent clay. Some pedons contain thin strata of fine sand, loamy sand, or silt. Gravel or cobble sized rock fragments range from 0 to 25 percent by volume. Some pedons contain free carbonates. Sandy substratum and ponded phases are recognized.

COMPETING SERIES: These are [Linwood](#), [Medo](#), [Palms](#), [Philbon](#) and [Shalcar](#) series. Linwood soils have well expressed granular structure to depths of more than 12 inches and formed mainly in woody fibers. Medo soils have sandy textures in the lower part of the series control section. Palms soils have organic matter content greater than 75 percent and do not have an A horizon directly below the organic material. Philbon soils have fibric and hemic material in the upper 12 inches. Shalcar soils ave less than 26 degrees difference between mean January and mean July temperatures.

GEOGRAPHIC SETTING: Klossner soils are in basins that were formerly lakes or ponds, lake plains, till plains, flood plains, or moraines. They are also on hillside seep areas in moraines and sideslopes of river valleys. Slopes range from 0 to 8 percent. The soils on nearby uplands are generally loamy. The mean annual temperature ranges from

45 to 50 degrees F. The mean annual precipitation ranges from 24 to 32 inches. Frost free days range from 110 to 160. Elevations above sea level range from 800 to 1400 feet.

GEOGRAPHICALLY ASSOCIATED SOILS: The main ones are the [Canisteo](#), [Harps](#), [Okoboji](#), [Glencoe](#), [Muskego](#) and [Houghton](#) soils. Canisteo and Harps soils are on the rims of depressions. Glencoe and Okoboji are at the outer edges of the depressions. Muskego and Houghton soils are in larger depressions.

DRAINAGE AND PERMEABILITY: Very poorly drained. Surface runoff is negligible. Permeability is moderately slow to moderately rapid in the organic layers and moderate or moderately slow in the loamy material.

USE AND VEGETATION: The greater part of this soil is cultivated to corn, soybeans, small grains and specialty crops such as vegetables or grass sod. Other areas are in vegetation of grasses, reeds, sedges, alder, aspen, or willow. Some of the hillside seep areas are set aside as natural areas and called fens.

DISTRIBUTION AND EXTENT: The south central and southeast part of Minnesota and possibly northern Iowa. The series is extensive.

MLRA OFFICE RESPONSIBLE: St. Paul, Minnesota

SERIES ESTABLISHED: Nicollet County, Minnesota, 1989.

REMARKS: Diagnostic horizons and features recognized are: sapric soil materials from the surface to about 26 inches; loamy mineral material from 26 to 50 inches or more; aquic moisture regime. This soil was formerly included in the Palms Series in Minnesota.

ADDITIONAL DATA: Refer to MAES-CFC#'s 2697, 3251, 3400 and 3475.