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Soils of South Dakota

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Sails...

OF SOUTH DAKOTA

Soil maps fill an important function in the agricultural program of South Dakota. They are the means of taking stock of the State's most important natural resource—the soil. Besides furnishing this inventory, these maps assist the people of the state in applying the research of laboratories and green houses.

Fertilizer responses, crop adaptabilities, and management techniques are by no means the same on all soils. This is because soils have different levels of natural fertility, different water storage capacities, etc. Consequently, it is necessary to inventory the soil resources and to use this as a basis for satisfactory soil management and fertility practices.

The map in this folder is based on data obtained from the following sources: unpublished Reconnaissance Soil Map of South Dakota (1935) by J. G. Hutton, South Dakota Agricultural Experiment Station, and W. I. Watkins, U.S.D.A.; information supplied by the U.S.D.A. Soil Conservation Service Soil Surveyors; and maps and reports of the writers and the Bureau of Plant Industry, Soils and Agricultural Engineering, U.S.D.A.

AGRONOMY DEPARTMENT
AGRICULTURAL EXPERIMENT STATION
SOUTH DAKOTA STATE COLLEGE
BROOKINGS

SOILS OF SOUTH DAKOTA

By F. C. WESTIN, A. J. KLINGELHOETS and G. B. LEE¹

It is difficult, even on large scale maps, to show the occurrence and distribution of individual soils. Any particular landscape is a combination or an association of many soils—those which occur on the steeper slopes, those which occur on the level areas, those which occur in the depressions, etc. On a small scale map such as this, only the major landscapes or associations are shown and the soils listed in each association represent only the principal soils found there. More exact information as to the nature of the soil on any particular farm can be obtained from the county soil survey map and report, or by consulting the county agricultural agent.

LIGHT GRAYISH BROWN LOAMS TO SANDY LOAMS

CRdBv — Cushman — Rhoades — Bainville — Loams over clay loam shales. Cushman soils are gently undulating, have good drainage; Rhoades soils are scabby, occur in basins and have compact subsoils; Bainville soils are steep and shallow.

MBvVR — Morton — Bainville — Vebar — Regent — Loams, sandy loams and silt loams. Morton soils are undulating, moderately deep over clay loam shale; Bainville soils are steep and shallow over clay loam shale; Vebar soils are undulating and moderately deep over sandstone; Regent soils are undulating silt loams and clay loams, moderately deep over clay loam shale.

BvMF — Bainville — Morton — Flasher — Light grayish brown loams and sandy loams. Bainville soils are steep and shallow over clay loam shale; Morton soils are undulating, moderately deep, over clay loam shale; Flasher soils are steep, shallow soils over sandstone.

LIGHT GRAYISH BROWN CLAY LOAMS AND CLAYS

PL — Pierre — Lismas — Clay soils over clayey shale. Pierre soils are undulating, moderately deep; Lismas soils are steep, shallow.

WiPCn — Winifred — Pierre — Cheyenne — Light grayish brown clay and loam soils. Winifred soils occur in basins over clayey shale; Pierre soils are undulating over clayey shale; Cheyenne soils are loamy level stream terrace soils over gravel and sand.

PoPW_i — Promise — Pierre — Winifred — Silty clay loams and clay soils over clayey shale. Promise soils are developed in silty clay and clay, wind-deposited sediments over shale; Pierre soils are undulating over clayey shale; Winifred soils occur in basins over clayey shale.

LIGHT GRAYISH BROWN SILT LOAMS, LOAMS, AND SANDY LOAMS

KE — Keota — Epping — Silt loams over limy sandstone and unconsolidated silts and clays. Keota soils are undulating, moderately deep; Epping soils are steep, shallow.

¹Assistant Agronomists.

BBuAs — Barnes — Buse — Aastad — Loams over limy clay loam glacial till. Barnes soils are undulating, moderately deep; Buse soils are steep, shallow; Aastad soils are level or in slight basins, moderately deep.

BeTCb — Beadle — Turton — Cresbard — Loams with claypans over limy glacial till. Beadle soils are flat, have a moderately compact claypan over clay loam till; Turton soils are flat, have a slight claypan over hard shaly glacial till. Cresbard soils are flat, have an alkali claypan over clay loam glacial till.

RcB — Reliance — Barnes — Undulating silty clay loams and loams. Reliance soils consist of silty clay loam wind-blown deposits; Barnes soils are loams over limy clay loam glacial till.

KrB — Kranzburg — Barnes — Undulating silt loams and loams. Kranzburg soils consist of silt loam wind-blown deposits over limy clay loam glacial till; Barnes soils are loams over limy clay loam glacial till.

SKrB — Sinai — Kranzburg — Barnes — Undulating silty clay loams, silt loams and loams. Sinai soils are silty clay loams over water-separated silts and clays; Kranzburg soils consist of silt loam wind-blown deposits over limy clay loam glacial till; Barnes soils are loams over limy clay loam glacial till.

MoTCI — Moody — Trent — Crofton — Ida — Silt loams over limy wind-deposited sediments. Moody is undulating, moderately deep; Trent is nearly level, deep and moderately well drained; Crofton is rolling, moderately shallow; Ida is steep, very shallow.

BrHm — Bearden — Harmony — Silt loams over lake-laid or lacustrine sediments. Bearden is slightly sloping, moderately deep; Harmony is nearly level, has a slightly compact alkali claypan.

AbEx — Aberdeen — Exline — Silt loams over lake-laid or lacustrine sediments. Aberdeen is level, has a moderately compact alkali claypan; Exline is level, has an extremely compact alkali claypan.

FvSoU — Fordville — Sioux — Ulen — Level loams and sandy loams over sand and gravel outwash. Fordville is moderately deep to gravel; Sioux is shallow to gravel; Ulen is formed from deep sands.

All — Alluvial soils undifferentiated. Mostly loam, silt loam, and silty clay loam alluvial soils.

RsCy — Rosebud — Canyon — Loams and sandy loams over limy sandstone. Rosebud soils are undulating, moderately deep; Canyon soils are steep, shallow.

FaCn — Farland — Cheyenne — High terrace silt loams and loams over silty or gravelly materials. Farland soils are level to undulating over silty stream deposits; Cheyenne soils are level to undulating over gravel and sand.

MISCELLANEOUS IMMATURE SOILS

MtC — Mountain Complex — Thin soils derived from a great variety of crystalline rocks (granites, etc.) and sedimentary rocks (shale, limestone, etc.) on rolling to mountainous topography.

Bd — Badlands — Thin soils derived from unconsolidated silts and clays on rolling topography.

Sa — Sandhills — Sandy soils on undulating to rolling topography.

GRAYISH BROWN LOAMS AND SILT LOAMS

WZEs — Williams — Zahl — Estevan — Loams over limy clay loam glacial till. Williams soils are undulating, moderately deep; Zahl soils are steep, shallow; Estevan soils are level or in basins and have compact subsoils.

AEk — Agar — Eakin — Undulating silt loams over wind-blown silt or limy glacial till. Agar soils are over wind-blown silt; Eakin soils consist of a two- to four-foot mantle of wind-blown silt over limy clay loam glacial till.

AkW — Akaska — Williams — Silt loams and loams over mixed glacial drift. Akaska soils are slightly undulating silt loams over outwash gravel and sand; Williams soils are undulating, moderately deep, over limy clay loam glacial till.

DARK GRAYISH BROWN SILT LOAMS, LOAMS AND SILTY CLAY LOAMS

PsRc — Presho — Reliance — Undulating silty clay loams. Presho soils are developed over silty clay and clay wind-deposited sediments; Reliance soils are developed over silty clay loam wind-deposited sediments.

BoH — Boyd — Hamill — Silty clay loams over clay shale. Boyd soils are undulating, moderately deep; Hamill soils are steep, shallow.

HoBsCl — Holt — Bonesteel — Carlock — Loams and silt loams over limy sandstone. Holt soils are undulating, moderately deep; Bonesteel soils are steep, shallow; Carlock soils have a mantle of wind-deposited silt over the sandstone substratum.

TOPOGRAPHY OF SOUTH DAKOTA

The Missouri river in South Dakota naturally divides the glaciated eastern portion of the State and the unglaciated western area. Most of western South Dakota is a maturely dissected, undulating to rolling plain. The Black Hills on the western border rise several thousand feet over the surrounding plain. The over-all drainage in western South Dakota is from west to east.

Eastern South Dakota is an immaturely dissected, undulating glacial till plain. Conspicuously elevated in the eastern area is the large flatiron-shaped upland known as the Prairie Coteau. The drainage in eastern South Dakota is from north to south.



SOILS OF SOUTH DAKOTA GENERALIZED MAP

