The mixed prairie region of North Dakota embraces the entire western or Great Plains portion of the state. It is the region that is commonly known as the Missouri Plateau and is drained by the upper Missouri and its tributaries. It has an altitude of 1800 to 2700 feet, and a mean annual rainfall of 14-18 inches. The surface features of the region are almost wholly the result of erosion and the topography ranges from level in sections distant from main streams to the rough and broken country adjacent to the Little Missouri river known as the Badlands.

The normal soil of the region is a well developed chestnut soil. The loams and silt loams have a mellow brown surface soil underlain at 3 to 5 inches by brown soil arranged in medium sized friable vertical blocks extending to a depth of 19 to 24 inches. The parent material may consist of either till or residual sandstone, shale, or clay of the Fort Union formation.

The rolling and hilly upland is characterized by a brown soil having a shallow solum. The parent material is residual from sandstone or clay. Numerous soils developed from local and general alluvial material occur which together with the uplands soil result in an intricate pattern of soil types having extreme variations in productive capacity.

The physiographic features naturally limit the uses of the land to two main groups - namely, grazing and crop production. The native mixed grasses occur in several vegetative types closely associated with soil types. Although varying in quality and quantity the vegetation offers excellent grazing. The major dominants and the most important species from the grazing viewpoint found on the normal loam and silt loam soils are Blue grama (Bouteloua gracilis), needle grass (Stipa comata), nigger wool (Carex filifolia), the sedges (Carex stenophylla and pensylvanica) and Western wheatgrass (a smithii). Associated with these grasses and sedges are usually a few other less important species as June grass (Koeleria cristata), other needle grasses,}

tics were ineffective buffers in delaying the intensive use of the croplands for cropping purposes. Unfortunately of the settlers who are still using the land have experienced the thrill of possessing a bumper crop produced on newly broken sod under favorable conditions without observing the variation in yield between various soil types. It is true that the natural vegetation and adaptation of various types to crop yield are necessarily nor relatively revealed on new and as a result, many farmers continue to use the land and operate their land on the strength of crop yields obtained under extremely favorable physical conditions for plant growth. As a result the wholesale application of artificial stimulants of various kinds, such as seed and feed loans, have been necessary in order that the existing land system may survive.

Continuous cultivation has speeded oxidation of the original organic matter and subsequently reduced the availability of available nutrients, water holding capacity, altered the soil structure, and as a result, the general fertility of the soil is reduced. The light textured soils become subject to serious erosion and many shallow and immature soils inherently low in fertility are rendered still more unfit for crop production. Many of the solonized lands having such a high toxic effect on plant growth that crop production is positive are being cultivated continually despite meager yields.

Attempted production of green manure crops, especially on the young immature soils, has not been successful and with the general decrease in matter, active wind erosion reduced the desirability of summer fallowing.

The semi-arid climate with extreme variation in rainfall, temperature, and wind movement between seasons year to year makes crop production hazardous occupation even on the best of the region.

Perhaps the most obvious evidence of the shortcomings of the settlers law is in the region known as the Black Hills. The character and extent of the badlands. The character and extent of the many shallow and immature soils, has not been successful and with the general decrease in fertility, active wind erosion reduced the desirability of summer fallowing.