It has long been recognized that subsoil is a very poor medium for plant growth and that it could not be compared in fertility to the surface soil. This has been explained in various ways, but little is really known as to just what deficiencies cause subsoil to be raw and unproductive. This investigation was undertaken to obtain more definite information on this point and to see how the fertility requirements of the different subsoil horizons compared.

Pot tests were made with wheat on four horizons of cultivated Crosby silt loam, a light colored soil, and on three horizons of cultivated Clyde silt loam, a dark colored soil often associated with Crosby in the timbered section of the late Wisconsin drift area in Central Indiana. The Crosby horizons were: First, the surface six inches of cultivated land: Second, a grey friable mottled layer at a depth of 6 to 15 inches including the A2 and B1 horizons: Third, B2 and B3 layers combined at 15 to 30 inch depth. This is a yellow brown silty clay loam: Fourth, a quantity of the unweathered C layer which is a mixed calcareous till.

On the Clyde silt loam three arbitrary layers were used: the surface six inches, the 6 to 15 inch horizon and the 15 to 30 inch horizon. The clyde gradually changes from a dark almost black surface to a lighter colored grey in the deeper horizons. The 15 inch to 30 inch horizon was very tough and came out in angular cubical fragments which did not slake down into fine earth even at the time of harvest of the wheat crop. Galvanized iron pots nine and one-half inches in diameter with about the same depth of soil were used.

The average rainfall at Lafayette where the soils were secured is about 37 inches per year, fairly well distributed through all the seasons. The land has been under cultivation for about 75 years and is now in a productive state.