Comparison of Effects of Disking and Plowing on Some Properties of Soil
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Recent investigations have indicated some beneficial effects of mulch culture particularly in regard to soil and water conservation. Experiments were set up at this Station in 1943 involving the use of mulch culture with various tillage practices to determine what practices would facilitate soil and water conservation and sustain or enhance crop yields of corn. This report summarizes some of the data obtained to date, stressing, in particular, soil properties as they are influenced by the use of disking and plowing. Although final conclusions on some points can not yet be drawn, it seems appropriate to summarize the more important results now. This may help to crystallize the thinking and to coordinate the future research on this subject.

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Review of Literature

Although the plow has been recognized for many years as the basic tillage implement for the primary preparation of root bed for corn, the desirability of its use has recently been questioned. Experiments in various parts of the country have revealed either beneficial or adverse effects of mulch culture as compared to plowing for the preparation of land for corn. Page, et al. (14), experimenting on the Miami soils in Ohio, reported that "the ideal soil condition appears to have been approached most closely by plowing." Nutt and Peele (13), experimenting with row crops at South Carolina on Cecil sandy loam involving the use of summer cover crops as sources of mulch, reported that the mulch-disk method affords a practical way of producing corn and maintaining high yields, while erosion and runoff are reduced to negligible quantities. Russell and Keen (15), Sheed and Norton (16), and Norton et al. (12) from their comparative studies on different methods of tillage concluded that plowing is the most satisfactory tillage operation for higher production of crop yields. Browning and Norton (6) reported that the plow is the only satisfactory and economical method at present for the preparation of a seedbed on heavy grass sods. White (18) reported that the moldboard plow is the basic tool of the farm and can be said to be the foundation of civilization. Cox (7) comparing the effectiveness of mulch culture tillage with other methods of seedbed preparation concludes that the job of tillage for seedbed preparation is not complete with merely cutting the roots of plants. Stopping weed growth and covering shattered grain and weed seeds are important; the plow does these satisfactorily, agitates the soil, and appears to do a good job of seedbed preparation.