

coal are used, or either, the mechanical condition of the clay is materially improved by its becoming less adhesive, more ready to pass water, and equally capable of retaining manure. When the manuring has been neglected in the fall, it may be placed in the deep furrows in early spring, and covered by splitting the ridges, the after cross-plowing of which will tend to mix it thoroughly through the whole mass of soil.—*Working Farmer.*

MULCHING FOR WINTER.

Those who have large quantities of salt meadow grass of little value, such as three-square rush, etc., should slightly mulch their grain crops. Such practice will prove a great protection during winter; and a single ton of such cheap salt hay may be spread so thin as to mulch two or more acres. If left in the spring, it will not interfere with the growth of the grain. It may be raked off, however, if desired, and used as bedding for cattle. Indeed, a mulch of such cheap material may be placed on any plowed soil with profit. Many farmers who are in the habit of spreading long manures thinly over the surface of their grass and other fields, in late fall or early winter, erroneously attribute the increased crops of the following year, to the manure which may be washed into the soil. A greater part of the benefit of such practice, arises from the long litter contained in the manure, acting as a mulch; and the same benefits would arise from a top-coating of less value of material. Every one must have observed that an old board lying on the grass through the winter, and removed in the spring, will cause the new growth during the following summer to be larger than the surrounding grass, and arising from no other cause than its action as a mulch or surface protector.—The cheap hay spoken of, will perform the same service on a more extended scale. Pear trees may be mulched with profit; but this should not be done until after they have dropped their leaves, as early mulching prevents their passing into the dormant state sufficiently early, and thus causing them to take up a larger amount of water during the fall, which is caught between the bark and wood of the tree, and frozen during winter, causing that disease known as winter blight. Our practice is to remove the summer mulch late in September, and not to restore it again until winter has fairly made its appearance. This removal of the mulch arrests the growth soon after the removal of the fruit; and when all activity of the tree has ceased, indicated by the falling of the leaf, the mulch may be restored so as to secure early spring growth.—*Working Farmer.*

EXHAUSTION OF SOILS.

BY S. DUDLEY.

The following is from the *Farmer and Planter*, of Pendleton, S. C., by Mr. S. Dudley, late-pupil with Mr. H. C. Vail.

Every farmer is well aware that soils after years of ordinary cultivation, decline in productiveness, and ultimately become "worn out" or exhausted. Some soils require but a few years, and others require many years, to produce this exhaustion; the former may have been in an unproductive state when the cultivation commenced, else there may have been a deficiency in the materials applied for the growth of the plants; the latter may have been in a productive state at the commencement of cultivation, else there may have been only an ordinary supply of plant constituents.

The farmer is frequently surprised that his intended crops fail when he has exercised particular attention in the application of *all* his manures.—But experience teaches us that the majority of failures in farming may be traced to the imperfect understanding of the judicious management of fertilizers. Hence the importance of directing the farmers to the subject of inefficient manuring, which is the fundamental cause of exhaustion.

It is well known that many people are leaving the Atlantic States, "for the West," because the soil in said States is so unproductive. It is also generally known, that the once fertile valleys of New York are waning in productions. It is also true that the West must suffer a decline in fertility eventually, if the people pursue the present ruinous mode of culture which is practiced to a great extent throughout the country.

The following upon the subject, is taken from Liebig's recent work: "The mineral substances found in the ashes of plants, were originally ingredients of the soil. In the shape of the agricultural produce of a field, or in the crop, the entire amount of these ingredients of the soil which have become ingredients of the plants, are removed from the soil." Now it is evident that we must return to the soil the same quantity and quality of ingredients as the crop removes, if we would continue the soil in a fertile condition. As this has not been done with most farmers, it is obvious why soils decline or become entirely unfit for the productions of cultivation.

There has been a general disposition to borrow of the soil, without a knowledge of the mode of repaying; but this repaying is important with honest men, and, again, the soil will certainly tell it