

DEEP TILLAGE.—Deep ploughing turns the drought itself to good account, and renders mulching and irrigation comparatively needless, or, if used, more efficacious. During a dry spell and in trenched ground, roots strike deeper in search of food and moisture, become more extensively ramified, and sooner find the rich loam and manure intermingled deeply with the soil. The leaching process, as it is called, is reversed, and takes place upwards more than at any other time, or, in some scientific phrase, capillary attraction is increased. As each particle of moisture is evaporated from the surface, it is succeeded by another, and the whole soil is filled with the ascending moisture and gasses, which are appropriated by the numerous rootlets as they have need.

The wet season is also a blessing to the deep cultivator. The more rain, the more heat, ammonia, carbonic acid and other organic elements are left in the soil as it descends. As each drop filters through, it is succeeded by another, or by air, both essential to vegetation; and to dissolve, act on or combine with the inorganic elements of the soil. As the water drains off air is sure to follow, and this is the proper mode of its circulation. Each is also generally at a higher temperature than the undrained land, and the warmth of the under soil is therefore relatively increased. The farmer often objects to this waste of water, and would retain it for a dry time. The trenched and porous soil holds water like a sponge, notwithstanding the drainage. It retains or can command enough for the wants of vegetation. But let us see the operation on the undrained land.

The farmer often speaks of his "cold, wet land." No variety of soil, in any location, is of itself colder than another. The very water, which trenching, draining, &c., allows to pass off, after imparting its virtues to the soil, if retained on or near the surface by hard, impervious subsoil, becomes itself, by its change, the source of the coldness complained of.—Instead of running off it evaporates, and by this practice abstracts a great quantity of heat from the soil and surrounding atmosphere. The evaporation of a pound of water requires about 1,000 degrees of heat, some authors stating it at less and others more, or it reduces one hundred pounds of air 45 degrees. This is reversing the experiment of Professor Johnson, in Espy's "Book of Storms," where he says, "a pound of vapor," condensed to water, "would heat 100 pounds of air about 55 degrees." The ground to a considerable depth, is warmer by many degrees, where the rain is drained off, instead of being allowed to accumulate and evaporate. Hence this enormous loss of an invaluable stimulus to vegetation.

The chilling and deadly process of evaporation is going on to excess from the time frost comes out of the ground in the spring, till freezing again occurs. At this period, the undrained land having the most water to freeze, becomes the warmest, say in December, when of no value in vegetation, but rather an injury. For once, forsooth, the undrained land is warmer than the drained! But for this excess of heat in the winter, this kind of land must pay dearly in early spring. How is all this! inquires the farmer. Simply because water, in congealing to either ice or snow, has its capacity for heat lessened about one-ninth, and this excess is given off to surrounding bodies: or, in other words, its latent heat is set free. On the other hand, ice or frost, as it is called in the ground, in melting, demands back this same heat, at the rate of from one-eighth to one-ninth of 1,000 degrees for every pound melted; and under the surface it does not obtain all this directly from the sun, but through the soil; therefore, the more water the colder and longer cold will be the land in spring. Now, let the agriculturist go to work and make this "cold, wet, heavy land" of his, the very best he has for any product, trees, vegetables, grains, or grasses.—*Dr. Kelley.*

GUANO FOR INSECTS.—A correspondent of the Horticulturist says:

"Sometime last summer, while budding some young peaches, I found that ants had taken possession of some ten feet in one row. They very earnestly resisted my attempts to inoculate the trees inflicting many unpleasant wounds on my hands and arms. In order to disperse the warlike little nation, I sprinkled near a pint of fine guano along the little ridges. This threw them into immediate consternation. I noticed little collections of winged ants huddled close together and seeming to be quiet, while those without wings ran about in great agitation. The following day not a single insect could be found where the day previous they appeared to be innumerable."

To which we add the following from an unknown source: "We had a very fine melon patch which was well nigh destroyed by the striped bug. The vines had commenced running, and in two or three days the bugs had stripped nearly every leaf. As a desperate remedy, we applied a handful of guano on the top of the hill as far as the vines had run, taking care that it did not fall on the leaf. In twenty-four hours not a bug was to be seen; the vines had assumed a healthy and vigorous growth, and are now loaded with fruit. The experiment was not on one vine only, but hundreds."—*Western Agriculturist, Oct. 19.*