

compact, the cool surface exposed to the air for the reception of moisture is smaller, and what is deposited does not enter into the earth far enough to be appropriated; but if the soil be loose and porous, the air enters more deeply, and deposits its moisture beneath the surface. Almost any soil, in which a seed will germinate, may be made, by continued hoeing, to produce a crop. Above all, cut away every weed that appears. "One year's seeding makes seven years' weeding." The only use of weeds is to make a necessity of tilling the ground more frequently. Weeds will come up in spite of our care, but much can be done to prevent their spreading or maturing.

#### MANURES.

Anything, which, being added to the soil, directly or indirectly promotes the growth of plants, is a manure. Manures *directly* assist vegetable growth, either by entering into the composition of plants, by absorbing and retaining moisture from the atmosphere, or by absorbing from it nutritive gases. Manures *indirectly* assist the growth of plants, either by destroying vermin or weeds, by decomposing in the soil, by protecting plants from sudden changes of temperature, or by improving the texture of the soil. The manure from cows and all animals that chew the cud, is considered cold, and suited to a light soil; that of horses, hogs and poultry is hot, and best suited to a cold, heavy soil. All new and fresh manure engenders heat during fermentation, and has a tendency to lighten the soil, while old, rotten manure is thought to render it more compact and firm. The manure of birds is richer than that of any other animals. Three or four hundred weight of the manure of fowls, turkeys, etc., is equal in value to from fourteen to eighteen loads of animal manure. Guano is a manure of this class. It is well to apply about two hundred weight per acre, with one-half the usual quantity of other manure. Guano should never, in a fresh state, come in contact with seeds or the roots of plants, as it is sure to destroy their vitality. A thick coat of hog-pen or barn-yard manure, spread on the garden and turned in every spring, will enrich, warm and lighten the ground better than any application of other manures. The principal animal manures are those of the horse, the dog, the cow and the sheep. Of these, the horse manure is the most valuable in its fresh state, but it should be exposed as little as possible, as it begins to heat and lose its nitrogen immediately, as may be perceived by the smell; mix it with other manures, and cover it with absorbents as soon as possible. That of the hog comes next in value, while the cow is at the bottom of the list. The richer the food given to animals, the more powerful is the manure. If animal manures are employed in a fresh state, they should be well mixed with the soil, and given to coarse feeding crops, such as corn and the garden pea; but nearly all plants do better if the manure is composted and fully fermented before use. Bone dust, mixed with ashes or pulverized charcoal, and sown broadcast over the ground at the rate of three bushels per acre, is very beneficial, and the most valuable for Turnips, Cabbages, etc., and the quantity needed for an acre is so small that the expense is less than almost any other application. Common salt, at the rate of six bushels per acre, sowed in the spring, on lands distant from the sea shore, not only promotes fertility, but is very useful in destroying worms and slugs. Marl, where it can be obtained, may be applied with advantage, especially to sandy soils. Soot is excellent to drive off insects and vermin. Very little of this can be obtained, but it should be carefully preserved, and applied in small quantities to cabbages, turnips, cucumbers, melons, squashes, and all plants infected with insects. Charcoal renders the soil light and friable, and gives it a dark color and additional warmth for early crops. When composted with night soil, it becomes *poudrette*, and is second only to guano as a fertilizer. Leaves, straw, and rubbish, thrown together, and moistened with a mixture of lime and salt, if kept damp until decomposed, forms the best known manure for trees and shrubs. Swamp muck, mixed with salt, lime, or leached ashes, is of value where it can be obtained, but of still more value is the leaf mold, or black surface soil of the woods. For the vegetable garden, it is best composted with fresh animal manure, but can be applied directly to most plants in the flower garden, many of which will not flourish unless this material is present in the soil. Tanbark, decayed chips, sawdust and shavings, covered with soil, are of great advantage to potatoes. Wood ashes, leached or unleached, may be used with decided benefit, as a top-dressing, to most growing vegetables, especially onions and

turnips. Plaster sown upon the growing crop, is good for turnips, cabbages, beans, cucumbers, squashes, melons, and all broad-leaved plants.

#### COLD FRAMES.

A cold frame is a simple construction of boards for planting out early in the Spring, cabbage, lettuce, cauliflower, broccoli, etc. Select a dry, southern exposure, form a frame from four to six feet wide, and as long as is required. The back should be fourteen inches, and the front six inches high, with a cross-tie every six feet. The soil should be well prepared and smoothly raked before planting. Admit air freely on all pleasant days, but keep close in severe weather.

#### HOT FRAMES.

In order to secure a supply of early vegetables, a hot-bed is indispensable. It can be constructed by any handy man, at a very small expense. It consists of a wooden frame, generally six feet wide, and from six to sixteen feet long, according to the supply of early vegetables required. One side should be at least six inches higher than the other—the frame sub-divided by cross-bars, and each division covered by a glazed sash; the sides and ends should be joined by hooks and staples, to admit of its being taken apart and stored away when not required. The frame should face the south or southeast. After completion, place it on the manure bed, prepared in the following manner: Fill in about ten inches of rich, pulverized soil: and allow it to stand a few days, giving it air by slightly raising the sashes, so that the fiery vapor, or steam may escape. The seeds of cabbages, cauliflowers, peppers, tomatoes, and other hardy varieties may be sown, and the plants planted out as soon as the weather begins to be warm.

#### PREPARING MANURE FOR HOT-BEDS.

Fresh stable manure, in which there is plenty of litter, is most suited for this purpose. There should be at least one-third litter in the heap. If this is not in the mass in sufficient quantity, add leaves or tanbark; shake it up, and mix it well together, adding water if at all dry and musty, and throw it into a compact heap to ferment. Let it remain a week, and then work it over thoroughly, as before, and add water, if necessary. Where the ground is quite dry, a very good method is to dig a space about eighteen inches deep, and put in the manure, tramping it firmly and evenly, and place thereon the frame or sash, and put in the rich earth, and, in about four days, sow the seed, having previously stirred the earth freely, to destroy the seeds of weeds therein.

#### TRANSPLANTING.

In transplanting, the main points to be regarded are, care in taking up the plants so as to avoid injury to the roots, planting firmly so as to enable the plant to take a secure hold of the soil, reducing the top to prevent evaporation, and shading to prevent the hot sun from withering and blighting the leaves. Transplanting should be done in the evening, or immediately before or after a rain. Give each plant a gill of water, and shade with a shingle.

#### WATERING.

The best time to water plants is at sunrise, or in the evening, and always use rain-water when it is to be had. If well water must be used, it should be exposed to the sun a day or two, till it rises to the temperature of the air, before it is applied. Water may be given to the roots at any time, but should never be sprinkled over the leaves in the hot sun, for it will make them blister and become covered with brown spots wherever it touches. If watering a plant has been commenced, keep on until the necessity ceases, or more injury than good will result from it; one copious watering is better than a little and often. The use of the hose should always follow the water pot, as soon as the ground becomes dry.

#### ROTATION OF CROPS.

As different plants appropriate different substances, the rotation of crops has considerable influence in retaining the fertility of the soil. If the same kind of plants are continued upon the same soil, only a portion of the properties of the manure applied is used, while by a judicious rotation, everything in the soil or in the manure suitable for vegetable food, is taken up and appropriated by the crop. Another reason for a rotation of crops is, that some