

upon the surface of the ground after the beds have been prepared. Four feet wide and twelve long is a convenient size for the frames. To cover these, screens may be made of common lath, say three feet by four, which is a handy size and not so liable to be broken as larger. In making these screens the strips of lath may be placed as far apart as they are wide, say an inch and a half; this will permit enough of light to reach the plants to ensure a healthy growth, and at the same time furnish shade enough to prevent burning. Of course other materials may be employed for shading, such as screens of cloth, boughs of evergreens, or even making the beds on the north side of a fence, building or under large trees; but the lath screens are cheap and most convenient, besides more or less useful to have about for putting over hot beds, to keep out the chickens, if there are any around. It is well to make up the frames and screens during the winter months, in order to have them ready when required for use in early spring.

BEST SOIL FOR THE SEEDLINGS.

A light porous soil is necessary, whether it be sand, loam, or peat, and it should also be deep and moderately rich, although rank, fresh manure will not answer for this purpose. Soil that becomes compact and hard on the surface when dry, would prevent the young seedlings from coming up, consequently should not be used for this purpose. Where a loose, friable soil cannot be obtained in sufficient abundance to be used exclusively for the entire depth of the beds, a smaller quantity will answer, by spreading it over the surface to the depth of two or three inches.

SOWING THE SEED.

As soon as the ground is sufficiently warm and dry to work readily in spring, the seed may be sown in drills six inches apart and crosswise of the frames. If the seed is covered by sifting the earth over them to the depth of half an inch, it will be better than covering it with hoe or similar implements. After covering, water the bed thoroughly, applying with a watering pot and through a fine rose. The screen may be put on and, from this time forward, considerable care will be necessary to give just enough water to insure healthy growth, but not enough to cause the plants to mildew or "damp off," as it is usually termed by nurserymen. It is easy enough to grow evergreens from seed, when one has learned how by experience. The seedlings will require careful attendance during the entire first season, and may be transplanted the second, if a good, vigorous growth is secured.—*Rural New Yorker*.

Our Experience in Planting Raspberries and Blackberries.

We have many inquiries as to the best time to set the above—whether "fall or spring is the best." We have always had the best success with fall planting. First, because every plant grows, leaving no vacancies in the row, while in spring settings we always fail to have good results in their coming, and thus have vacancies in the rows, and as these cannot be filled up until the following fall or spring, the rows are always uneven. Second, fall set plants make at least one-third better growth the first year than those set in the spring. Third, one has so much more time to attend to it in the fall than in the spring, and hence can make so much better job of it.

For years we have tried both times for setting, and our preference is the fall. It is well known that they cannot be set in the spring unless land is of a very light, sandy nature, so long as ground is unsettled or kept wet by rains, and hence most persons fail to get them planted out before latter part of spring, and then the dry weather coming on, many failures and vacancies occur. The past spring proves this to us with a number of sorts we set, both of "tips" and "sucker" varieties, and we have fully resolved that hereafter our plantations of raspberries will go in in the fall. "But won't they heave out?" and "How must I set them?" are questions asked us. If it be sod land, it should be plowed at once, in narrow furrows, so as to cut up the sods into as narrow strips as possible. Let this lay until first of November, then plow again across the furrows as they were plowed before, having had the land well harrowed or cultivated over two or three times previously, or after the first plowing. For blackberries and black raspberries, mark off the land with a one-horse plow into furrows 6 feet apart one way (7 feet is still better for blackberries), and 3 feet the other, and in each crossing put out a plant, setting blackberries and cane or sucker

raspberries about as deep as they stood before, and "tip" raspberries so they will be about two inches below the level. Then, just before winter sets in, throw a good fork or shovelful of coarse manure or litter over each hill. This answers two purposes, one enriching the soil where the plants are by the soakings from manure, and the other protecting them from "heaving."

Another plan is to make a good hill or mound over each plant. This prevents water from standing immediately over the plants, and plants being so well protected by earth, are not harmed. Early in the spring level these mounds down. This plan not only protects them through the winter, but by this drawing away the earth, leaves the soil over the plants loose and friable. These mounds over the field can also be leveled down by running over them with a light harrow early in the spring. If it be corn or potato land, one good, thorough plowing and harrowing will answer.

The plants can be set any time before the ground freezes, though it is well not to risk putting it off too late, as a freeze up may occur to prevent. They can be taken up and transplanted any time after middle to 20th of October.

Manure for the Vine.

Of all the substances entering into the composition of the manure heap, none have a better influence upon vines than bones. In the formation of a border, they are of essential utility, affording for a long period a constant source of nutriment. The avidity with which the roots of the vine seek such a depot of food may be easily seen by placing a large porous bone amongst the roots of a vine. In a few months it will be literally covered with rootlets, which have sought it out and find their nutriment in its recesses.

Leather, hair, horns, hoofs, woolen rags and other animal offal possess a similar action to bones. They all possess the valuable property of lying undecomposed in the soil for long periods, yet yield readily to the disintegrating action of plant roots. Hence, while they afford abundant and valuable nourishment to the vine, it is not surfeited by them, as this nutriment must be wanted and sought before it will be given up.

Ashes of wood, whether fresh or leached, are a powerful manure for the vine, and probably contain all that it requires. Leached ashes may be applied as a top dressing in almost any quantity with excellent effect, but a more cautious use must be made of fresh wood ashes, they being much more powerful and caustic.

Coal ashes have hitherto been deemed utterly worthless, and are usually thrown into the street. To some soils, however—particularly those which are too heavy—they are a very useful addition; and as they are a powerful absorbent, there is no doubt that, if mixed with night soil or some similar matter, they would prove an excellent article—more lasting, and, consequently, better than night soil by itself. They should never be thrown away, however, as they contain lime, iron and minute, though appreciable quantities of alkalis, soda usually predominating. It is also quite possible that they contain minute traces of phosphates, though in no analysis with which I have met is it mentioned. Where the coal has been burned at a high temperature, the alkali is in general reduced and the metal volatilized.

The dung and urine of animals form a powerful manure. The solid excrements of all these are best mixed with some absorbent, as plaster, charcoal, burnt clay, etc., or thoroughly decomposed in contact with vegetable matter, as straw, leaves, etc. The liquid and soluble portion may be used as liquid manure, or may be poured over the fermenting dung heap.

The dung of birds, as hens, pigeons, etc., and also guano, form a very convenient and most excellent top dressing for vine borders, but are better when applied as liquid manure during the growing season.

An excellent manure may be made as follows: Sink a hole in any convenient part of the premises and fill up with sawdust; on this pour all the urine that can be obtained from time to time, and keep closely covered with a board cover.

When sufficient has been added, or when the smell has become offensive, remove the cover and place a pile of charcoal, burnt clay, coal ashes or other absorbent, on top of it, and allow it to lie for a few weeks. At the end of that time a mass of matter will have been produced almost equal to guano.—*Rural World*.

Suitable Soil for Growing Plants.

The principal cause of success attained in growing plants in pots, vases or baskets, &c., is in having a soil suitably adapted to the want of the plants to be grown therein. From the numerous inquiries constantly reaching us, we apprehend the want of a suitable soil to be the principal cause of the non-success our fair readers are occasionally subject to. The question of soil is very simple and easily answered for those living in the country, who usually have the opportunity of selecting any kind of soil they may need. In our practice we use only one kind of soil for any and all purposes, and as the plants usually thrive to our satisfaction, we are contented.

Effete and worn soil should never be used for potting plants, as they usually dwindle and grow unsatisfactorily less, instead of becoming examples of health and vigor, as their owners require them to do. Nothing can be better for plants than the top "spit" of soil taken from an old pasture or from the side of the roadway. This should be thrown into a pile to allow the sods to become rotten, after which it should be broken up finely, and equal parts of fine, well-rotted manure and sand should be added to it, and the whole thoroughly mixed up together, when a compost will be obtained that will be fit to grow any kind of plant usually found in a dwelling house. If the grassy part is pared off thinly with the spade the soil below can be secured, mixed with manure and sand in the proportions indicated, and used at once with every success. We always prefer to obtain, when possible, a chestnut loam, and the fresher or newer the soil the better the plants will succeed. A soil mixed in the proportions above mentioned will not become sodden or sour, as is generally the case when worn-out soil, as taken from the garden, is used.

Many persons think it necessary to use black muck for plants. This we never use, and we think it decidedly injurious to plants, except it has been exposed to the action of the sun and air for some time before using, as it is very sour and full of poisonous gases when first taken from the swamp, that are injurious to plant life.

So much alive are the gardeners of Europe to the importance of having new soil in their flower beds for certain varieties of plants, that they annually dig out and remove the soil to the depth of twenty inches, replacing it with new soil and manure, and consider themselves well rewarded with the extra success that attends their labors in the production of finer plants and flowers by such procedure.

Cut Worms.

In the last issue of the *ADVOCATE* we mentioned the successful result of applying salt to land for the destruction of cut worms. In the following, from the Report of the American Department of Agriculture, there are other remedies given; probably some of them may be successful. Salt, for that purpose, we know to be an unfailing remedy, if properly applied.

Searching for the worms when they come out to feed, or digging them from their holes near the plant, and killing them, is doubtless the most effectual remedy we can employ. Curtis says one-quarter ounce of salt dissolved in a quart of water will drive the grub away, and preserve the plant till washed off by rain. Tobacco-water will kill them if it comes in contact with them. Quicklime will also destroy them if put on the plants when wet, and dry soot dug into the ground is very offensive to the grub. Suds made of one pound of soap to ten gallons of water, and applied warm, will cause them to dart out, when they can be immediately killed. Four ounces of aloes dissolved in a gallon of water and applied to the plants, is said to preserve them from the cut worm. Smooth holes made with a rake or hoe-handle near the plants will serve as traps into which the worms fall, and may there be destroyed. Coal-tar and water, a spoonful of the former to a gallon of the latter, will, it is said, drive the worm away without injuring the plant. Where a few choice plants are to be protected, this may be done by wrapping stiff paper or walnut-leaves around the stem when setting them out, leaving the paper a little above ground, and an inch or two below. Cow-dung stirred in water, and poured around the plant so that the solid part will remain and form a hard surface, through which the worm cannot penetrate, has been recommended. For a similar insect in Europe, Kollar advises lime-ashes applied to the land, or lime water in damp weather. If the female moths are attracted by sweet liquids, many of them may be killed, and as they are also lured by lights in the evening, they may be destroyed in this manner to some extent.