

trial. If you can obtain from intelligent farmers in your neighborhood any of this information from their own experience, it may save you the time of years in making the trial for yourself. Until the value of each or of some has been tested by them or by yourself, we would not advise you to make large purchases of those substances which may not pay the cost.

2. When you have ascertained what substances are of sufficient value on your land to warrant their application, you can purchase separately such as you need, or you can buy of manufacturers the same ingredients, paying as much more for the latter as will save you the trouble of mixing. If you will procure the full reports of the New-Jersey or the Connecticut Experiment Stations, you will there find accurate analyses given of all the leading fertilizers, so that you need not be imposed on in making your purchases.

3. The formula furnished contains valuable substances, which may or may not be all well adapted to your land; probably most of them may be useful, although some of them are in a much larger quantity than may be economical and in application. But it would be a random uncertain estimate to attempt to compare them with barn manure, for any locality, for the above mentioned reasons. Their present market value may be given, but not the amount of good they do on any farm. At present prices, a ton of these ingredients would cost about thirty dollars, and the "fifteen tons" would amount to \$450. A manufacturer should charge something more for mixing, commission, and other expenses. The "800 two-horse loads of barn manure", might be worth more to you. The best barn manure, at market rates, would be worth two or three dollars a load; poor manure not half so much.

A FARMER'S FRUIT SUPPLY

EDS. COUNTRY GENTLEMAN—Formerly our family was supplied with the small fruits from the garden near the house. The soil was heavy and liable to become hard, and it was not practicable to use horse cultivation. The berries ripened at a time when it was convenient to let the poultry have their liberty, and for these reasons a fruit plantation was established at a distance of 30 rods from the farm buildings. The place selected for use is on the south side of the highway, where the soil is a sandy loam suitable for the purpose, and where the snow usually covers the ground in winter, but does not drift, which is an important point to be considered in determining the location of a fruit garden. The plot of ground used is twelve rods in length along the road, and nearly three rods in width. Wire fencing is used along the side, so that snowdrifts are avoided, and portable board fence panels at the ends, for convenience in cultivating with a horse and in applying manure. These panels are in place only for a short time in the fall, when the cows are securing the after-feed on the adjoining meadow.

Five feet from the road fence is a row of black-caps, seven feet from that a row of red raspberries, and seven feet from that a row of currants and gooseberries. The remaining width is equally divided into three plots, to be used in yearly rotation—first for green peas, second, newly set strawberries, and third, strawberries in full bearing, to be plowed up after picking. Having tried various methods, I shall hereafter set strawberry plants 18 inches apart, in rows four feet apart. This width affords room for matted rows, and for continued cultivation with the horse through the season, and little hand labor is needed. Two such rows, 12 rods long, will, with ordinary care and richness of soil, give from 200 to 300 quarts of berries. Last year we picked 300 quarts, which proved an ample supply when fresh, and for canning and jolly, and some surplus to sell or give away.

The varieties that I now have of strawberries, black caps and red raspberries afford a continuous supply of ripe, fresh fruit for the table for full two months, and I suppose that with a better selection the time might be somewhat lengthened.

The past winter has been favorable, and very little damage has been done to strawberries or raspberries. A part of the red raspberries were bent down and held by a rail on the tips, which method proved satisfactory, as it required but little labor and the canes were not broken by snow, resuming their natural position when the weight was removed. The canes treated in this way start a little earlier and appear more vigorous than the other. I shall hereafter lay them all down in this manner, as it involves but little labor.

With rows twelve rods long and plenty of room between, most of the labor of the small fruit plantation can be done with a horse, and less than one-fourth of an acre will give a family of a dozen persons a full supply for the year, and at much less cost than if the same amount had been bought at market rates. This cheap luxury of home raised, fresh-picked fruit is within the reach of every farmer's family, as much of the labor can be done by children and invalids.

Those who raise their own fruit are doubly paid—once with the delicious berries themselves, and again by the satisfaction received in their cultivation and growth.

Lewis County, N. Y.

C. S. RICE.

THE GRAZIER AND BREEDER.

DISHORNING—ITS WITNESSES.

A number of readers, who have seen the statements and opinions which have been published, pro and con., on dishorning cattle, are puzzled to determine what course to adopt in the midst of conflicting statements, and desire to know in what direction the evidence preponderates. To assist in settling the question, we give in very brief form some of the leading statements which have been made. Against the practice, we quote the following:

Dr. E. Moore, on p. 133 of the COUNTRY GENTLEMAN for 1885, says: "It is a horrible practice, cruel and unnecessary—causes more suffering than it is intended to obviate." Dr. Wm. Horne, p. 58 of vol. for 1887, says it is a "cruel infliction of pain—a useless and cruel operation"—"frightfully painful"—"to dishorn cattle is a crime." Dr. Horne remarks again on p. 58, 1887: "The operation of dishorning is frightfully painful. I know of total ruin in one case from dishorning a Jersey bull." On page 292, for 1888, A. W. Porter, who witnessed the operation on a number of cows, stated that the animals would crouch down and bellow, as though suffering intense pain, quantities of blood flowing. He thinks the operation cruel and barbarous, and cutting off the point of horn and screwing on a brass ball will be sufficient to prevent harm from hocking.

On the other hand, we have the following statements in favour of the practice:

T. B. Terry, on p. 352 of the COUNTRY GENTLEMAN for 1886, says: "The horn ought to go; the embryo horn may be killed by burning slightly, and without much pain. Many farmers in Illinois are dishorning, and a suit against one of them for cruelty, brought out overwhelming testimony in its favor; and the suit was withdrawn." E. W. S., on p. 93, 1887, remarks that "the best time to dishorn is at one month old, cut out the embryo horn with a sharp knife close to the skull, taking a little skin with it—it is not cruel; the pain is much less than castration." On p. 152, the same year, F. Perkins asserts that his direct loss from the injury by horns to cattle, has amounted in eight years to over \$300, besides indirect loss: a cow hooked a heifer to death, with other di-