fire; stir well and pour on water; when cool enough to work, grease the hands well and work it like shoemaker's wax or taffy. Then roll balls of convenient size for putting into the vessel used when grafting. It should be heated over a moderate fire and put on the grafts thin, but not too hot. This wax will not crack in cold weather, nor run, even if the weather gets up to 100° in the shade.—[Samuel Miller, in Popular Gardening.

Success and Failure with Small Fruits.

BY E. W. REID.

If you allow weeds or grass to grow with your vines they rob them of the plant food which by rights belongs to the plant. If you think you are lowering the cost of production by only working them once a month you are mistaken; you also lower the profit. We should furnish the most favorable conditions of the soil and keep a strict account of every dollar and every hour we have charge of the vine. There is no use for us to plead innocence when we fail, and say we have done it to the best of our ability. In this age when so many practical books are issued on this branch of industry, you should try and be at the front. Have a mind of your own; think, for thoughts put in practice do wonders. I do not mean by this that you can make a success by reading either books or papers alone; these should go with practical ideas of your own.

It is the profit we are after. Our first thought should be the soil and the preparation of the same. It should be drained naturally or artificially, and should be in the finest condition. It is impossible for vines of any kind to do well if water stands on the soil. We should make the soil as fine as possible. I think the best way to do this is by fall plowing, and then to stir it in spring with cultivator. This cannot so well be done in soil inclined to wash with winter rains. It is utterly impossible for plant food that is concealed in rough soil and lumps to do the plant any good whatever.

As to fertility the time has passed for relying on the natural fertility of the soil alone. If we want the cream we must furnish the feed for it —the large crop makes the profit. This can be done with stable manure, and there is nothing better. It is better if well decomposed. I never use cow droppings, however. I find that this favors the white grub, hatched from eggs deposited by the May beetle. Last year I tried five loads again and it caused me more trouble than all the rest put together. Prof. Hoard, of Wisconsin, acknowledged the same fact to me.

Berry plants contain a large amount of rich material, and this is why they require so much plant food. In a deep and rich soil the plants are better able to go through an extended drought as we have had last season; a very essential point when fruit is ripening as much moisture is then needed. Years ago I commenced to cover my young bed with manure instead of straw. But the proof has come; they use manure in a pinch; the pinch is when they can get it. It has increased greatly in yield and gives brighter and larger berries. This is not only to be done with strawberries, but raspberries and blackberries Some practical growers think it better to use straw the first year and manure the second. I use it as a mulch the first year and plow it in for plant food the second.

The roots need air almost as much as moisture, and are deprived of it if a crust forms on the surface, and for this frequent stirring is the remedy. This also keeps down all weeds, but you should not work too late in the fall. I do not use the horse-hoe after Sept. 15. If any weeds or grass appear after that time, I go through with sharp hoes.

Planting should be done as early in the spring as the season will permit. We want a good plant taken from a young bed, with good strong roots, and if set early it will receive almost no check whatever. My method is to use a spade and line. I stretch two lines across the field, or as long as the rows are wanted, then two men and a boy can plant one acre per day if the ground is in good condition. The spade is pushed in alongside of the line, which makes a straight row and the same width. The boy carries the plant in a basket, and drops as the planters want them, so as not to expose them to the wind or sun, which is very injurious to them.

The plant is held in one hand and allowed to go the right depth into the opening with its roots spread out and hanging straight down, and then press the dirt firmly about it with the foot. The plant should be so firmly set that a leaf will pull off without disturbing the plant. It is a big loss when you have a poor plant and get a poor stand, for it takes the same cultivation, covering and time as if you had a good stand. It is a point worthy of the greatest possible care; failure here, and the plants are of a feeble nature the whole season. To set the plant too deep and with the crown covered is very injurious. Not deep enough is as bad. Planted with the roots all in a bunch close to the surface they will dry out in a short time. A most critical time is when it is out of ground.

Hardy Apples for the North-west.

F. K. Phœnix, of Wisconsin, says:—Five successive hard winters make planters in the cold North and North-west ask what style of apple tree will give us the best fruit on the very hardiest, best stock? We favor root-grafted or seedling iron-clad Siberian Crab stem-worked in nursery, three to five feet from the ground, to the more hardy choice apples, like the Red Astrachan, St. Lawrence, Wealthy, Fall Orange, Bailey Sweet, Alexander, Fameuse, Romanstown, Tallman Sweet, Ben Davis, Golden Russet, &c. The new Russian iron-clads seem hardly well enough tested as to quality of fruit, winter-keeping, &c.

Not finding such trees already worked in nurseries, you can find the Siberians, plant and stem-splice or cleft-graft them yourself. They always graft best the same spring transplanted. Stocks or limbs an inch in diameter are as large as it is safe to graft in the cold North. Trees with larger stems are best splice or cleft grafted on side branches an inch or so from the main stem, which in growing will soon wholly cover graft joints. Large-bearing, sound-hearted Siberians not needed for fruit may also be profitably grafted over. To prevent fire blight scatter on or through the foliage one-fifth sulphur mixed with four-fifths slacked lime dust, on early dewy mornings, three or four times, say a month apart, commencing when the buds open; also whitewash bodies with the same. Let the above be tried and results reported.

Mr. David Nichol, of the Kingston district, talking about the kinds of apples that are worth growing in Eastern Canada, quotes the McIntosh Red as a hardy variety, adding that the parent tree, over seventy years of age, is in a healthy bearing state on the ground of the son of the originator in Dundela, Dundas County. The La Rue is a large red winter apple originated at La Rue mills in Leeds, Ontario. The Gibson, a handsome dark-red winter apple, originated at Yonge's mills in the same county. The parent trees of both varieties are still bearing fruit, although over 70 years old. These kinds may be said to be perfectly hardy, if endurance in a cold climate is a reliable indication. They can be advantageously shipped to foreign markets, where they are in demand at remunerative prices.

Poultry.

Minorcas.

As the Minorcas have been admitted to the American standard as excellence (or, as it will henceforth be called, the standard of perfection), a few words on the breed may not be out of place. Personally, the writer has watched the course of the mania for this breed carefully, and has often expressed himself in these columns as doubtful of the continuance of their popularity for any great length of time. But that they will hold a fair share of public favor is beyond a doubt. In a recent issue we predicted smaller combs in a few years. Already the Poultry Review has suggested the same; and when they get as small as Plymouth Rock combs they will be much more useful. There is little doubt that they are excellent layers, laying a fairly large egg, pure white; but not as early developed as the Leghorns or the Wyandotte. That they are a good or even fair table fowl can not be for a moment entertained. Mr. Tegetmeier says in the London Field, after referring to them as a very prolific breed as layers, says: "It should be understood that I am not now writing of prize Minorcas, with combs four by six inches, that have to be kept up by wire-work when not in full dress, but such farmyard birds as may be bought by the hundred in the south-west of England. But do not ask as to their merits on the table. I know of a cook maid who calls them 'The Crows.' They are eatable, but the flesh on the breast seems to have run to eggs." Thus, the position that we have taken is supported by the ablest poultry writer in England, and we confidently expect that when this breed has become more common, and the combs, through natural or other consequences, reduced in size, to find them one of the most profitable for egg production.

Brooders vs. Hens as Mothers.

The enthusiast is ready to "catch on" to anything new. The old fogy condemns everything but the oldest systems extant. The sensible man is ready to give all systems an intelligent trial, at least so far as he has any need of them, and can do so at a reasonable expense. Now for winter and early spring chicks give the brooder a trial, and if you are not prejudiced you will continue its use next season; but for late chicks there is nothing to be gained by the brooder.

Its principal use is to afford a comfortable nestling place at any and all times, and in cold weather it is of more importance than when it is warm. Again, the artificial mother does not move about with them as the hen does, and while this is best in cold weather, they are much better for moving about in the warm weather of the latter part of May and June. Thus we see both systems should be employed if we wish to have the best results that are to be had.