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THE STRAWBERRY

BY

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CLASS OF '95.

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Owing to the wide extent of country to which it is adapted, the strawberry is, perhaps, the most important small fruit. It is grown profitably in nearly all parts of North America and is found wild over all this territory, and more. On account of its productiveness, its ease of cultivation, its salability and its dietetic value, it is justly entitled to this high position.

History.

The commercial berry of to-day is largely a conglommeration and its history is wrapped in considerable obscurity. Fragaria vesca, F. elatior, F.grandiflora, and F. virginiana are each supposed to be progenitors of the modern berry. The first named seems to be the most important of the four. Just when the strawberry was cultivated is unknown. Its accidental mention in ancient literature does not prove that it was then of economic importance, and though Shakespeare uses the name in Richard II and Henry V it may an anachronism if it is taken for granted that the berries were cultivated. But in 1667 forced strawberries appeared in the menu at the installation dinner at Windsor. This would prove that they were more or less cultivated at that time.

The origin of its name is as doubtful as its debut. Some writers say it is so called from the practice of throwing straw among the plants to keep the fruit clean; others, that it from the Anglo-Saxon word "strahan" to scatter, from the straying nature of its runners; still others, that it is from the little hairs,(the styles) on the fruit. Whatever may be the origin of the name is now of little moment.

Though the older botanists thought the strawberry a perfect flowered plant, it is now known to vary from the purely pistilate, to the hermaphrodite of decided staminate development, but

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without the discovery of a strictly staminate plant. The flowers are proteranderous; thus close fertilization is guarded against. As with other plants, however, the pollen of other varieties is more potent than the pollen of the same variety. When pistilates are grown it is necessary to have staminate plants near by to furnish pollen. These should be planted in separate rows to prevent mixing, for the pistillates are often more rampant growers and soon choke out or conceal the staminate varieties if grown in the same row.

Cultivation.

By runners and seeds we have the principal methods of propagating the strawberry; plant division should be practiced only when valuable varieties, which are chary in the production of runners, are to be saved and increased. Propagation by seed is used when new varieties are desired, but otherwise it is not to be recommended as the strawberry does not come true to seed, there being a great tendency to vary. Crossing and hybridizing will be touched on later.

Commercially, propagation by means of runners is the only reliable method. Runners are produced abundantly by nearly all varieties. These may be treated in either of two ways, first, rooted naturally" and, secondly, in pots. The former is the commoner way, but when potted, the plants generally do better when set out, especially if shipped any distance or planted in an unfavorable season.

Like other fruits, especially early bloomers, the strawberry does best on a northern slope, or, where natural air-drainage is good, on high ground. The blossoms are then not so liable to be nipped by a late frost and the soil is not exposed in the same degree to the hot south winds which sap its moisture and thus injure the plants.

A good way to prepare the soil is to grow a crop of potatoes or corn on it, thus working over and fining it. The plat

should be thoroughly manured for this preparatory crop so that when it is off the surplus plant food will be in good condition for the berry plants. For an instance, in fall planting of the strawberry let us follow the processes from start to finish. Raise a crop of early potatoes on ground thoroughly manured and cultivated. This crop should be out in July when the land may be plowed, dragged, marked with a corn-marker in rows three to four feet apart, and then planted with young plants from a previous year's bed. These should be set from twelve to eighteen inches apart according to the variety, and the whole finished before the second week in August. Cultivate to keep down the weeds, mulch to conserve the moisture; clean culture is all-important. The mulch may be of marsh hay, straw, rotted street sweepings, litter, etc. Except for keeping down weeds nothing need be done till the ground is frozen . Then when the crust will bear a team give a liberal dressing of straw to prevent heaving of the plants by frost. In April this mulch may be raked into the spaces between the rows when growth has started, at the same time the under mulch may be stirred. But in the bearing year the ground should not be molested for fear of injuring the roots. During this year a partial crop may be gathered but the only important work is to keep the plants growing vigorously and to hoe out the weeds. In the fall of this year a dressing of compost and, later, a mulch are all that is necessary. The bed will be in full bearing the following spring and may be cropped three years. Two years' cropping is better; and, in commercial work, one year is the common pratice.

At the time of planting a little sodium nitrate is good to assist the young plants in getting a good start. The strawberry is a gross feeder and in a general way cannot be over-fed. It is better to have the plant food already in the soil as a surplus from a former crop than to give applications of manure during the growing season; but applications of well-rotted manure and commercial fertilizers may be given in the spring or the fall at the time of mulching.

Many good growers prefer spring planting as being more certain. The ground is prepared as in fall planting and the plants are treated in a similar manner. The main objection to spring planting is that there is then so much other work to do that the work is often done in a slip-shod manner. With fall planting the objection is that though the work may be well done as far as care in planting is concerded, the plants run great risk of being heaved by frosts,--greater because they are not thoroughly established. Which plan is really the better is hard to say; each has its advocates.

The two principal ways of cultivating the strawberry are the hill and the matted row systems. The former is best adapted to the wants of the amateur. It consists in setting the plants twelve or fifteen inches apart and keeping down the runners. By this method they produce numerous crowns, look pretty, give a fair crop of larger berries; but three or four times as many plants are required for the same area and the work is far greater than is necessary in the matted row system which has superseded it commercially. The matted row system consists in allowing the plants to spread out both sides of the row and to fill all the space for two feet or less. It may be seen that this method requiring so little attention, would naturally become very popular.

Enemies.

One great advantage the strawberry grower has over the grower of nearly all other fruits, is the small expense to which he is put in fighting parasites and insects. Only one serious disease attacks the strawberry. This is the leaf-blight (Sphaerella fragraria) which attacks the leaves, stems and fruit stalks. It appears as a purplish spot with a white center and it later on turns brown anddries up. It produces both summer and winter spores, the former being borne on long, slender hyphae; the latter, concealed beneath the epidermis, break-

forth in the spring and thus disseminate the disease. Often a crop is ruined by an attack at or about the time the fruit sets. The tender fruit stalks are attacked and girdled in a very short time. The Bordeaux mixture (40-gallon formula) and the copper sulphate solution (1# to 250 gallons of water) are now relied on to prevent the destructive effects of this parasite. Applications of Bordeaux mixture may be made when growth commences, just before blossoming and, if necessary, about ten days after blossoming. If further spraying is considered necessary an application of the copper sulphate solution may be given even as late as the coloring of the fruit. After fruiting the Bordeaux mixture may again be used. In young non-bearing plantations Bordeaux mixture may be used almost with impunity as its only deleterious effect is soiling the fruit thus making it unsightly.

In a similar way the strawberry grower need not lay in a lot of poison for insect pests as the strawberry is not the victim of much entomological depredation. The white grub is often destructive, but as this is found principally, if not wholly, on newly plowed sod land, it may be avoided by previous tilling of the plot, thus giving the grub time to escape. Leaf rollers, aphis, and caterpillars of various kinds, occasionally appear but they cannot be said to be specific pests and as they can be fought with kerosene emulsion, hellebore, or Paris green, no mention need be made of special methods of destruction, except that if leaf rollers are very numerous and troublesome, the patch may be burned over after fruiting. This method is very effective as the second brood is then in process of development.

Varieties.

Of the hundreds of varieties now offered for sale by nurserymen, only about a score are considered of specia l worth.

Of these I will describe five.

Crescent, a fairly productive, healthy, vigorous, pistillate variety with medium sized, rather acid berries has good shipping qualities. It is now giving place to Haverland and Warfield.

Warfield is a pistillate berry with strong healthy foliage and a great producer of fruit and runners. The fruit ripens very early, has firm, sub-acid, medium-sized berries, and is a good shipper.

Haverland is also a pistllate variety. The fruit is of good size and quality, but rather soft for shipment unless picked before fully ripe. Its foliage is very healthy. It is a valuable variety for near market or home use.

Jessie, a bi-sexual variety, is a good pollenizer and producer of excellent fruit, but is rather subject to disease.

Bederwood, Captain Jack, and Michell's Early are all good bi-sexual varieties and are thus good pollenizers.

Crossing.

Owing to the ease with which the strawberry produces new varieties, less attention has been given to it than it deserves Haphazard wind fertilization is the common practice. The stock raiser is very particular about t he parents of his thoroughbred: the carnation, or rose originator, is careful about the type of flowers he selects for parents of his varieties: each exercises judgment in his selection. But the grower of small fruits, especially the originator of this most delicious fruit, allows insects to carry pollen from worthless varieties into the bed he is using for the production of new and improved sorts Is it any wonder, then, that so little improvement, comparatively, has been made in size, shape, flavor and hardiness of late?

The laws of plant breeding are the same, as far as yet learned, as the laws of animal breeding. Scrubs produce scrubs; choice sorts as parents, while not always producijg choice

sorts, are liable to produce desirable varieties,--more, at least, than nondescripts. In raising new kinds, as rigid care should be exercised as in other branches of breeding. Systematic hand fertilization; removing the stamens of the selected female parent as soon as the flower begins to open; keeping the flower covered with gauze from then on till the fruit is ripe; carefully applying the pollen of the male parent when the pistils of the females are ready for fertilization; carefully labeling the plants to show parentage and other data; sowing, marking, etc., in a systematic manner; and keeping record of the plants' points, good and bad, are the rules which should be followed. In selecting the parents, a definite type of plant and fruit should be in view. Have in each parent as many desirable qualities and as few defects as possible, remembering that a feeble plant is liable to transmit its weakness to its seedlings. Other defects are as sure to appear as weakness. From the start, keep the parents in as vigorous condition as controllable conditons will permit: vigor and vitality must not suffer beeause of deficiendy in plant food, careless mulching, and poor cultivation. When the seedlings appear, surround them with every needful requisite to develop them fully, because, like animals, they are influenced greatly by their environment. They are not adults, and hence require greater care. When the fruiting season arrives, having in mind all data of growth, etc critically examine, and ruthlessly discard all those which show undesirable characteristics. None but superior varieties should be retianed.

Effect of Pollen.

There has been more or less debate about the influence of pollen on the fruit. In various other plants a marked influence is observed, the most noticeable of which is, perhaps, corn. Here we often see dark grains on a white grained cob and <u>vice versa</u>. If the surroundings are carefully observed, we may

find a dark seeded variety growing near the white, the wind carrying the pollen. Many leading horticulturists, among them Mr. A.S.Fuller, a gentleman of national reputation, claim that they have observed these effects in the strawberry, But this point is not well established and needs further investigation and experiment.

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