STRAWBERRY CLUB MANUAL

By A. S. COLBY

URBANA, ILLINOIS
FOREWORD

One of the most important social and educational institutions in modern life is the boys’ and girls’ club work. All young people have a craving to “belong to something,” and to interest those outside the immediate family in their affairs. Garden club work offers this, besides making it possible for them to work both for pleasure and profit. In gardening certain advantages are gained. Among the most important of these are the food obtained, the healthfulness and cheerfulness of outdoor work, the financial returns, and the deep satisfaction that comes from seeing things develop under one’s care. The knowledge gained from acquaintance with the plants— their peculiarities of growth, their necessary food supply and care—is far more valuable to the gardener than the money gained from the produce.

In order to make a garden profitable it must not be carelessly planted or cared for, but the best thought and effort must be given it. The willingness to learn from the experience of others and to plan ahead make for greater success. Planning is the first requirement.

The strawberry club offers an excellent opportunity for outdoor work among the small fruits, where the initial investment is small, the results quick, and the interest sustained. It is the purpose of this small circular to help the boys and girls of Illinois to plan and care for a strawberry patch.

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STRAWBERRY CLUB MANUAL

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The strawberry is more commonly grown in Illinois than is any other small fruit. Not only is it one of the most popular fruits, but it is particularly adapted to the home garden, furnishing a supply of fresh and properly ripened fruit for family use. It thrives in widely different soil and climatic conditions, and under careful treatment brings good and quick returns at a comparatively small outlay of time and money.

The purpose of this circular is to bring to the attention of those boys and girls who are members of a strawberry club the fundamental principles underlying successful strawberry culture.

SELECTING THE SITE FOR THE PATCH

The proper choice of the particular piece of ground upon which strawberries are to be grown is extremely important. Even tho the best of care be given the plot later, the results will not compensate for the choice of a site which lacks the requirements necessary for strawberry culture.

The site should be somewhat elevated from the surrounding areas, with a gentle slope to provide air drainage. Some provision should also be made for water drainage. If possible, land with an elevation, however slight, should be chosen, since cold air settles into low places and it is also probable that such low land will be too wet. If the slope of the land has a southern exposure, the plants start into growth earlier in the spring, thus resulting in an earlier crop, with maximum prices. However, if late spring frosts are frequent, safety should not be sacrificed to earliness; and an eastern or northern slope may be preferable in order to hold the plants back more or less until climatic conditions are more favorable for growth.

Strawberries may be grown upon a variety of soils. They do best, however, on a soil neither too heavy nor too light, well prepared, moderately fertile, well-drained and containing a good supply of humus. General experience tends to show that strawberries prefer a somewhat acid soil.

The ability of the soil to hold moisture is of first importance. The strawberry is shallow-rooted and is therefore dependent upon a uniform supply of moisture close at hand for the production of
heavy crops. Much of this moisture is needed at fruiting time, when, ordinarily, rains are insufficient to supply the demand. The soil, therefore, should be in a condition to hold the moisture from earlier in the season. Decaying organic matter in the soil increases its capacity to retain water; it also helps to liberate hitherto unavailable plant food. A liberal amount of this humus should be incorporated in the soil before the strawberries are planted.

PREPARATION OF THE SOIL

The land should be well-prepared for the reception of the plants. The growing of a hoed crop at least one year previous to planting strawberries is recommended, especially if a good coating of manure has been applied and turned under for that crop. If the hoed crop has been well cared for, many troublesome weeds will have been eradicated. The white grub, one of the most destructive pests of the strawberry plant, is found commonly on sod land; and it will be less troublesome in a plot which has been cultivated for one season. Then too, the land will be in much better tilth, thereby insuring a more satisfactory plant growth.

Soils are seldom too rich for strawberries. A heavy covering of barn manure (from ten to thirty tons per acre, applied not later than the fall previous to the spring planting and worked under at that time) will become somewhat decomposed and incorporated with the soil during the winter. An additional plowing or spading in the spring, as the first step in fitting the ground for planting, will bring up this decomposed plant food to a point nearer the surface where the strawberry plant can use it to advantage. If little fertilizer has been added previously, and the bed is to be planted in the spring, a thick coat of well-rotted manure may be scattered broadcast at this time and well worked in before the plants are set. When it is difficult to get barn manure, a rotation of green manure crops is recommended. Such legumes as soybeans or cowpeas turned under add both humus and nitrogen to the soil.

Commercial fertilizers may be beneficial on some soils. On light, sandy soils, if manure has already been applied an application of 200 to 500 pounds of acid phosphate per acre may be made in the spring and worked in, to increase the yield. Nitrate of soda, applied at the rate of 100 to 200 pounds per acre as the plants are starting into growth the second season, may be beneficial on light soils. An excess of nitrogen, however, results in soft berries and too rank a leaf growth. In Illinois, on small patches, it is best to incorporate sufficient plant food in the soil by applying barn manure as the fertilizing agent.
Varieties

The first important step in starting the strawberry patch is that of the selection of varieties. A variety should be chosen which is especially adapted to the climate and soil, to the purpose for which it is grown, and which ripens during the season desired. The sex of the variety also should be known and considered.

The strawberry is a most cosmopolitan fruit, growing in almost any locality from Florida to Alaska. Varieties like Parsons’ Beauty succeed best in certain parts of the country, while others, like the Dunlap, do well under wide differences of soil conditions. The Dunlap, however, seems to thrive especially well on the lighter soils.

One should have a certain purpose in mind in growing strawberries, for the selection of varieties is dependent upon that factor. With many commercial varieties, quality of fruit is sacrificed for shipping quality. When the fruit is grown for home use, or for fancy trade at a local market, the berries should be of good quality, rich color, thin they need not be especially firm; and a variety should be chosen which ripens thru a long season. Unless competition is keen among local growers, it is seldom advisable to advance the season too far by planting extra early varieties. An early to mid-season variety is recommended when only one variety is to be planted; and early to mid-season, together with a late variety, should be used in case a succession is desired.

Some of the standard strawberry varieties have imperfect blossoms, that is, they have pistils but no stamens. These varieties cannot set fruit unless the perfect-flowering variety grows near-by, to provide pollen, which is produced in the stamens. It is generally considered safer to plant varieties with perfect blossoms, on which are borne both pistils and stamens, and which produce their own pollen. Higher yields are thus possible in unfavorable seasons, and fewer “nubbins” result from poor cross-pollination.

The Dunlap variety, which originated at Urbana, Illinois, is generally considered to be one of the best all-round strawberry varieties for the northern half of the United States. It is a vigorous and hardy plant, producing numerous runners. The flower is perfect, and the fruit ripens from early to mid-season. The berry is fairly large, round conic in shape, glossy, and dark crimson in color. The flesh is dark red and fairly firm, with a flavor mildly subacid and of good quality.
Selection of Plants

Only the best stock should be used for setting. Plants from old beds, which have fruited, are usually weak and often transfer insects and diseases to the new patch. It is recommended that stock be secured from a reputable nursery, where the plants are not permitted to fruit but are grown in special nursery plots and the entire rows are dug as the plants are needed. Pedigreed plants, so-called, are for sale by the trade. These plants are from stock which, it is claimed, has inherited certain desirable characteristics, “fixed” thru careful selection in the nursery. The experimental evidence thus far published does not support the belief that these plants are superior to other stock well grown and in healthy condition.

It is desirable that the stock be obtained from runners of the same or previous season. The plant should have a healthy top, with a strong and vigorous root system, which should be light in color. Black roots indicate that the plant is old and unfit for planting.

Strawberry plants will stand shipment for some distance if properly packed. It is usually better, however, to order from a nearby nursery, in which case the plants are dug a short time before they are needed for planting.

As the plants are received from the nursery, they should be carefully unpacked and heeled-in. If allowed to remain in the original package for a short time, even tho put in a cool place, they will be seriously injured. To heel-in, spade up the soil and pulverize it as for planting, making several V-shaped trenches, six inches deep and fairly close together. The plants come in compact bundles of twenty-five each, with a label in each bundle designating the variety. The bundles should be opened, the plants separated and spread out in the trenches, allowing the moist earth to come in contact with the roots. This precaution is highly important. Then firm the earth carefully about the plants. Do not allow the crowns to be covered. The variety label placed at the end of each trench prevents the mixing of varieties.

When to Plant

All things considered, spring planting is usually preferable. Weather and soil conditions are more favorable for plant growth at that season. Pot-grown plants for fall planting may be purchased from nurseries which specialize in that type of stock, but they are expensive and of doubtful practical value.

Systems of Planting and Training

There are numerous systems of planting and training strawberries, three of which are worthy of mention and one of recommendation. In the “hill” system, only the original plant is allowed to grow; all runners are removed from the plant as they appear. It is claimed
that larger fruit can be secured from plants so trained. However, much handwork is involved in keeping plants trained to this system. The plants are set about 18 inches apart in rows 30 inches apart.

There are two "hedge-row" systems—the single and the double hedge. The rows and plants are spaced a few inches farther apart than in the "hill" system. In the single-hedge system each plant is allowed to produce only two runners, which are made to take root in the row, one just in front of and one just behind the parent plant. In the double-hedge system, two runners are rooted just in front of and two just behind each parent plant in the row. Owing to the extra runners which must be cut off regularly, these systems are also difficult to manage.

The third system—the "matted-row"—is the one most commonly used by growers. In a small patch where hand cultivation is practiced, the plants are set in rows about 3 feet apart, with the plants about 18 inches apart in the row. On a commercial scale, the rows are spaced up to 4 feet apart, thus permitting horse cultivation. The runners are allowed to form and set crowns until the rows are of the desired width; rows about 20 inches in width are most desirable. Throughout the season, additional runners are removed as soon as they appear. The "matted-row" system is the least expensive to maintain, and it results in a good crop of excellent fruit.
How to Plant

The land should be in good tilth, and in a high state of fertility, as described above. The plants may be set in straight rows by being placed against a wire drawn taut across the patch, if the distance is short. Another method of planting involves the laying out of the patch both ways by a marker. This tool may be cheaply constructed of several pieces of 2"x 4" plank about 18 inches long, rounded on the front ends like sled runners. These are laid on edge, as far apart as it is desired the rows should be. They are then fastened together by two narrow strips of inch board placed on top. Another narrow strip at right angles to these strips, and braced from end to end of the marker, serves as a tongue for drawing it over the ground.

The plants should be trimmed somewhat before setting, all but a few of the smaller leaves being removed in order to guard against excessive loss of moisture. Some growers recommend shortening the roots for convenience in planting. This may be done quickly by placing the plants in bunches on a flat surface and using a large, sharp knife to cut away the excessive root growth.

The roots should not be exposed to sun or wind while being set. A basket lined with damp moss and covered with a wet sack or a bucket partially filled with water will insure proper conditions for the plants as they are carried about the field. A flat dibble, a trowel, or a clean, shiny spade may be used to dig the holes for the plants. If the spade is used, it is inserted in the ground and pressed forward, a narrow opening being made into which the plant is placed, care being taken that the roots are well spread out, with the crowns just above the level of the ground. The soil is then pressed firmly about the plant, with the hands or feet, the plant being depressed slightly.

Fig. 3.—Pruning of Plant for Setting

A single plant of the Dunlap variety shown before and after pruning, preparatory to setting. The roots should be cut back a distance of about two inches, the old or diseased leaves removed, allowing only two or three of the younger and more vigorous leaves to remain.
in the operation, and left with its crown exactly at the ground level. This is an important factor in successful planting, for if the crown is too high or too low the plant will be killed. Another mistake often made is in not firming the soil sufficiently about the plant roots. It is well to test the work by jerking a leaf of a plant just set; if properly planted, the leaf will come away, leaving the plant in the ground.

MANAGEMENT OF THE PATCH

Summer Treatment: the First Season

Cultivation should begin the same day the plants are set, and continue throughout the summer and fall, as necessary. Weeds must be kept down, moisture conserved, and plenty of plant food made available. By midsummer the runners will present a problem unless they have been kept out of the space between the rows by being consistently cut away after the rows have reached the desired width. Deep cultivation must be avoided, as the root system of the strawberry plant is shallow. Fruiting should be prevented the first season by removing the blossom buds as they appear.

Winter Treatment

It is generally worth while to provide some winter protection in the form of a mulch. Extremes of winter temperature cause intermittent freezing and thawing, where a patch is unprotected, and many plants are winterkilled by heaving. The roots and crowns are also protected from the drying effect of winter winds. If carefully handled, a mulch may sometimes be advantageous in keeping the plants from starting into growth too early in an abnormally early spring. Where a mulch is used, weeds are kept down during the fruiting season, moisture is conserved for the plants, and the berries are cleaner.

Among the materials used for mulching are stable manure, straw of various kinds, wild hay, leaves, and cornstalks. Wheat straw is one of the best mulches. Oat straw is often used but it may pack rather tightly, and the grain remaining in the straw often gives trouble by germinating. On a windy site, a loose mulch may be blown away. Cornstalks are valuable in holding down lighter materials, and on a small patch may be used in connection with leaves. From two and a half to five tons of straw are sufficient for an acre. A mulch should be applied in late fall as soon as the ground begins to freeze but before it has frozen more than two inches deep. The mulch should be spread uniformly over the field, covering the plants not more than two inches. A heavier mulch may smother the plants.
**Spring Treatment the Second Season**

The mulch should be allowed to remain as long as possible in the spring, the length of time being regulated by the behavior of the plants, which should be carefully watched. The mulch should be left as long as the plants remain dormant. As soon as the first leaves begin to appear, the material should be partially raked off the rows into the middles and well tramped down. A portion of the material may need to be removed from the patch. The plants should be allowed to grow up thru the remaining mulch.

Some method of artificial watering, either by the overhead system or in the furrow, may be found practicable and highly profitable in assuring a good crop of fruit during a dry season. It may be necessary to pull some weeds by hand, but if the bed was properly cared for the previous season and the mulch was free from weed seed, the bed should need no further attention at this time, except perhaps spraying for the control of insects or disease.

**Caring for the Crop**

The strawberry is at its best as a dessert fruit, and if grown for home use or fancy local trade should not be picked until thoroly ripe. Thus, if the berries are left on the vines until needed, being picked only for immediate use, they will be greatly improved in quality and flavor over those purchased at the store. Early in the day, while the berries are cool, is the preferable time to pick. Fruit will not
keep as well if picked on a rainy day. The fruit should be pinched rather than pulled from the plant, each berry retaining the calyx and a short length of stem; then it should be placed, not thrown, into the baskets, to insure longer keeping in the fresh state. While the length of time the fruit will keep after being picked is dependent upon several factors, experiments show that for each rise of 15 degrees in temperature the life of the berry is decreased one-half. Berries should never be allowed to remain in the sun, but should be put in a cool place immediately after picking. The fruit should be picked regularly every day or every other day.

Renewal of the Patch

The number of crops to be taken from the strawberry bed depends upon the variety grown and the condition of the bed at the end of the first picking season, as regards soil fertility and the presence of weeds. If the Dunlap variety is grown, and good care has been given the bed during the first season, it will usually pay to renovate it, thus securing another good crop the next year.

The chief purpose of this renewal is to thin out the older, unproductive plants in the rows and give those that remain the opportunity to produce new matted rows of vigorous, healthy plants.

The best time for renewal is in early summer, soon after the bed is thru fruiting. If the mulch is heavy, it must first be removed and the tops of the plants clipped off with a sickle, or if planted on a commercial scale, the plants may be mown off with a machine. If the mulch is light, it may be removed with the leaves, which are raked off after being allowed to dry. The bed is then burned-over, on a windy day, after a rain, when the ground is moist. If the plantcrowns are dry, fire may injure them. These operations eliminate many diseases and insect pests.

The next step is to thin out the surplus plants. This is done either with a hoe or plow, depending upon the size of the bed. If a hoe is used, the surplus plants are cut away, leaving a vigorous plant about every ten inches in the row. A coat of well-rotted manure spread on and cultivated in, with the soil around the remaining plants well-hoed, will soon induce new runners to start. With good cultural methods continuing thruout the season, a new matted row will be formed by the end of this time, capable of producing a larger crop than the first year. In a large plantation, a turning plow is used to narrow down the original matted row, two furrows being plowed from one side of each row until the center of the row is reached. The middle space between the rows is then cultivated, the ridges being smoothed down and fresh soil worked in around the narrow strip of young plants. A fine-toothed harrow is then run cross the patch to cut out the surplus plants in the rows. As was the case during the
previous season good cultivation should be practiced from this time on. The treatment during the following winter and spring should be similar to that given the first year. It is seldom advisable to fruit a bed more than two seasons.

COMMON INSECTS AND DISEASES

As a rule, few growers spray to control insects or diseases but they fruit the plantation for two years only, then turn it under before the pests become too numerous and destructive. While clean cultivation aids in checking strawberry pests, it is usually necessary to spray if the pests are to be controlled completely. Most of the damage from insects is brought about by white grubs and leaf-rollers. The leaf spot is the most serious disease commonly found.

The white grub is the immature or larval stage of the "June bug." If the patch has been just previously in sod, this grub will be found in the soil and will attack the roots and crowns of the plants. The remedy is to avoid such soil by choosing a site one year previous to the time of planting it to strawberries and growing a cultivated crop on the land during that season, thus killing most of the grubs.

Strawberry leaf-rollers are small greenish-brown larvae which roll one portion of the leaf over upon the other and live and feed within this protecting fold. Spraying for their control must be done before the insects have begun to protect themselves within the leaves. An application of 3 pounds of dry arsenate of lead in 50 gallons of solution just before the young larvae begin to roll the leaves is effective.

Strawberry leaf spot may be identified by the small, round, light-colored spots which appear on the leaves soon after blossoming time. As the spots darken in color and increase in number, the leaves drop off, thus decreasing the vigor of the plant. This disease may be held in check by spraying with Bordeaux mixture 4-4-50, as growth begins, and again just before blossoming time. A combination Bordeaux-lead arsenate spray applied twice before the blooming period will usually control the leaf-roller and leaf spot sufficiently for practical purposes.

A good sprayer of some sort is a necessity. There are various types; the three-gallon air pressure outfit which is carried on the shoulder or at the side of the operator, and which may be secured at any hardware store, is well-suited to the small plantation.

BOOKS ON STRAWBERRY CULTURE

There are a number of books dealing wholly or in part with strawberry culture. Among these are Fletcher's Strawberry Growing and Sear's Productive Small Fruit Culture. Most of the state experiment stations publish information on strawberry growing, which is available for free distribution upon request. The U. S. Department of Agriculture also issues a number of bulletins on the subject, which may be secured from the Department at Washington.