

The Farmer's Fruit-Garden.

by

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In this age when there is so much scientific as well as practical knowledge available in regard to the culture of small fruits, there are few excuses which the farmer of today may offer for not having a fruit-garden upon his farm that will furnish sufficient small fruits for his table. In the earlier days it was supposed to be too much work and bother for the farmer to raise small fruits, but that day is, we are glad to say, passing away although there are some who still cling to the old ideas. It is the aim of this paper to farther dispel the doubts remaining in the minds of the farmers as to their ability to raise small fruits, by presenting

some facts in regard to the cultivation and care of small fruits.

First let us consider the selection of a location for the fruit-garden. There is some difference of opinion in regard to the slope of the land, some preferring a slight slope to the south, while others, and we may say the majority prefer the ground to slope gently to the north or northeast. The fruit-garden should be in a separate enclosure and surrounded by a high fence to keep out the poultry.

Where possible a wind break of some low growing trees or shrubs should be placed upon the north and west for protection.

The fruit-garden for the ordinary family need not be very large. From one fourth to one half acre

will under ordinary conditions produce fruit sufficient for use both fresh and for canning purposes. However in planning the fruit-garden it is well to make it large enough that it will furnish sufficient fruit in the so called "shy years" when the crop is light as a surplus in good years can better be tolerated than a shortage in the poor seasons. Conditions are too varied to enable us to lay down any fixed rule as to the yield of a certain number of plants.

The soil should be rich and as free from weeds as possible.

Soils adapted to special fruits will be discussed more fully later.

The ideal fruit garden should be longer one way than the other in order to permit of easy culti-

vation with a horse. Ample space should be allowed at the ends of the rows for turning ground. As a suggestion as to the arrangement of a fruit-garden we offer the following plan: Supposing the long way to be east and west, say about thirty rods long, begin on the north with strawberries, allowing the rows to extend in all cases, full length of the fruit-garden, ^{and} follow in order with gooseberries, raspberries, blackberries and currants, and having on the south the grapes. The grapes will tend to shade and protect from the hot winds the currants giving them as desirable an environment as could be found in the fruit garden. The ground can be more economi-

sally used by having the rows long and few in number, and the cultivation can be done more easily and economically.

Strawberry.

The strawberry is one of the first fruits to ripen and its delicious flavor combined with its earliness makes it a general favorite among the fruits. It is easily grown and no fruit garden is complete without it.

It thrives best on a deep, rich, moist sandy loam, but can be grown successfully on a large variety of soils. Any soil that will grow good crops of corn and potatoes can be made to yield fair crops of strawberries. Newly broken sod or freshly manured

land should be avoided for strawberry planting as the white grub is often very troublesome on such soils. The soil should be made fine and mellow and if it is not rich enough it should receive an application of fine well rotted manure which should be worked well into the soil. Hen manure is good. Slaughter house refuse has been highly recommended by some.

There are two seasons for setting strawberries, in the spring and in the fall. As a general rule the spring setting is preferable for Kansas conditions. When set in the spring all blossoms should be pinched off the first season and a heavy crop may then be expected the second season. Where the fall is not too dry good results may be obtained

by setting in the fall. Set in this way a light crop may be expected the following season.

The strawberry propagates by sending out runners which root and form new plants. These are the ones to select for setting a new bed. They should be set with care having the roots well spread and the soil well firmed about them. The crown should be well above the ground. In case the ground is dry, water the young plants every evening until they start growth.

The best system of training for the strawberry for the farmer's fruit garden is what is known as the matted row system. The rows should be four feet apart and the plants sixteen to twenty-four in.

apart in the row. The runners which spring to the sides of the row should be pinched off and those left which run lengthwise of the row, thus forming a matted row which may be about one foot wide.

All weeds should be kept down. In the fall after the ground freezes, a mulch of straw or leaves should be placed upon the bed. This will protect the bed from sudden changes of temperature. In the spring when growth starts a part of this mulch should be removed but a part may be left until after the crop is harvested as it will serve to keep down weeds and to retain the soil moisture and to keep the fruit from being soiled by contact with the earth. Care should be exercised in selecting material

for a mulch that it be free from weed seed. After the crop has been harvested the mulch should be removed and the ground well cultivated. Diseased plants or those infested by insects should be removed. New beds should be set every two or three years as the cost of setting a new bed is usually less than that of renewing an old one.

Varieties. When selecting varieties, it is well to choose those which will furnish a succession of fresh fruits. It is also important to select varieties whose flowers are perfect to mix in the plantation with those varieties whose flowers are imperfect. Some good perfect flowered varieties are Mitchell's Early, Bedenwood, Parker Earle, Wilson, and Captain Jack. Gandy is a good late variety. In the list of imper-

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fect flowered varieties are Crescent, Bubach, Warfield and Haverland which may be recommended for the farmer's fruit-garden.

Diseases. About the only serious disease of the strawberry is the leaf-spot. This is a fungus disease which attacks the leaves, appearing first as purplish spots which increase in size and become reddish brown in the center. The spores live over winter as does also the mycelium of the fungus. Where this disease is troublesome short rotations should be practiced. Use only healthy plants for setting a new bed and do not set new beds on infected ground. Spraying with Bordeaux mixture will help to keep this disease in check.

Insect Enemies. One of the worst insect enemies of the strawberry is

the strawberry leaf roller. This is the larva of a small brown moth which appears in early spring and lays its eggs upon the leaves. In feeding the larva draws the edges of the leaf together with a web and eats out the pulpy portions. There are two broods each year. The first brood is active when the berries are full size hence a spray of hellibore is about all that can be done.

After the crop is removed now I turn off the patch or run a heavy roller over it to destroy the larvae.

The second brood appears in August and can be given a spray of some arsenical poison. This second brood enters the ground where they change to pupae and remain until the next spring.

The white grub the larva of the common June beetle is often very troublesome on newly broken sod or on freshly manured ground and is often very destructive to the strawberry plant. Infested beds should be plowed up and new ones be set especially with the matted row system. ✓

Another destructive insect to the strawberry is the small, slender, green worm which attacks the leaves eating large holes in them and when present in sufficient numbers, destroys the entire foliage. This worm is the larva of a black fly. Dusting the leaves with lime when the dew is on has proven to be an effective means of combatting this pest.

The strawberry leaf beetle is a

small brownish beetle about an eighth of an inch long, has been found very injurious when present in large numbers. The adult feeds upon the leaves while the larva attacks the roots of the plant. When the fruit is off, they may be given a spray of Paris green or London purple.

A very difficult insect to combat is the strawberry crown borer, the adult of which is a small brown snout beetle closely allied to the plumb curculio. The female deposits her eggs in the crown of the plant, in the spring where the larvae destroy the embryo fruit stalks and leaves. The beetle cannot fly hence it is desirable to make new beds some distance from old ones. Do not use plants from an infected bed.

The only remedy for an infested patch is to plow it under after the fruit is gathered while the grub is still in the crown.

Another insect enemy of the strawberry is the strawberry root-louse, a greenish black aphid which attacks the roots of the plant especially in loose light soils. The presence of the insect is indicated by the wilting of the vines as if for want of water. It is said to be spread from plant to plant by ants. Dry ashes or tobacco dust is said to be helpful in combatting this enemy, but where beds are badly infested it is better to plow them under and grow other crops upon the land for a year or two.

Currant.

The currant is a sure producing, hardy, fruit with a pleasant flavor, is easily cultivated and is early ripening. It is propagated from cuttings for which the vigorous shoots of the previous year's growth should be selected and the cuttings made in the fall about eight to twelve inches in length. When winter sets in, cover the cuttings with litter and in the spring uncover and give good clean cultivation. Soil for the best growth of currants should be rich in humus, cool, moist and in a rather protected location. The young plants should be set four feet apart each way and clean culture given for best results. Mulching with straw is sometimes good. On a poor soil

a top dressing of compost composed of three parts of well rotted manure to one part of wood ashes worked well into the surface will be greatly beneficial.

The currant bears from wood over one year old, hence in pruning the object should be to keep as much wood between one and three years old as possible. Wood over three years old is not very productive. In our western country the bush form is best to prune to and four to eight canes is about the right number to leave. The canes should be cut out as they become three years old and new ones allowed to grow in to fill their place. All suckers should be kept down.

Some standard varieties which

may be recommended for the farmer's fruit-garden are Red Dutch, Versailles, Cherry and Red Grape. North Star is a hardy late variety of good quality. Varieties of black currants that may be recommended are Crandall, Champion and Black Naples.

Diseases. Cane blight is one of the diseases affecting the canes of the currant. The whole cane is affected and killed. It appears as numerous pink spots upon the cane. The leaves die and fall and the berries shrivel. The disease is very contagious and as soon as its presence is noticed the affected bushes should be dug up and burned as sprays are too slow to act.

Another disease is anthracnose which appears as dark spots upon

the leaves. Later the leaves turn yellow and drop from the canes. If the disease appears before the fruit is harvested spray the vines with ammoniacal copper carbonate to prevent staining the fruit. After the fruit is harvested spray with Bordeaux mixture.

Leaf blight appears as small dark colored spots upon the upper surfaces of the leaves, which later turn yellow and fall early in the summer. The same treatment as recommended for anthracnose will serve for this disease.

Insect Enemies. The currant worm is one of the worst insect enemies of the currant. The adult is a small saw fly which appears in the spring and lays its eggs on the

lower surface of the leaves. These soon hatch into larvae of a green color with black heads and numerous black spots upon the body. The lower leaves are first attacked and when the larvae are present in sufficient numbers, defoliation takes place rapidly. Before the fruit is formed spray with some arsenical poison and if the pest is still present after the fruit is formed, use white hellebore either as a dust or as a spray.

The currant span worm is the larva of a small pale yellow moth. It is sometimes very destructive but is usually easily held in check by the use of white hellebore and arsenical poisons as recommended for the currant worm.

The currant borer often does

considerable damage by boring up and down in the canes of the currant causing the leaves to wilt and often killing the canes. Cut out and burn all affected canes.

Gooseberry.

What has been said of the currant in regard to soil requirements, habits of growth, cultivation, propagation, and manner of pruning, will apply equally well to the gooseberry.

The varieties of gooseberries which may be recommended for the farmer's fruit-garden are Crown Bob, Whitesmith and Industry of the English varieties and Downing, Houghton's Seedling, Mountain and Pale Red of the American varieties.

The same diseases and insects which attack the currant also attack

the gooseberry. A disease known as powdery mildew attacks the gooseberry but rarely attacks the currant. This disease is very destructive to the gooseberry producing a felt-like coating upon the young growth of the stems including also the leaves and fruit. The fruits shrivel and drop later. The spores live through the winter. The best treatment is a spray of sulphide of potassium one ounce to a gallon of water. Bordeaux mixture is good but it tends to coat the fruit hence can be used with satisfactory results only when the fruit is off.

Raspberry.

The raspberry owing to its high flavor, productiveness, ease of culture, and permanence, deserves a place in

every fruit-garden. A deep, rich, moist but well drained soil not inclining to clay or gravel is best adapted for the growth of this fruit, although it succeeds well on a large variety of soils. The raspberry is propagated by root cuttings and by tips or layering. The latter way is most used. The tips of the recurved branches may be slightly buried in August or September and before winter, good roots will be formed. These will furnish plants for setting the next spring.

Plants should be set in rows five feet apart and from three to five feet apart in the rows. Clean culture should be given, and especial care be taken to keep the soil in good condition in the hot dry weather. Irrigation may be of help in such weather.

The fruit is borne upon shoots which sprung from one year old wood, hence wood over one year old should be removed. When the canes reach sufficient height, which is from two to three feet they should be pinched off at the tips to prevent too rank a growth and to stimulate side shoots which in turn should be pinched back after they have grown from twelve to fifteen inches in length. Three to five shoots should be left for the following year's fruiting.

Where winter protection is necessary the canes may be bent over and covered with straw, care being taken to prevent cracking of the canes.

Diseases. The orange rust is a fungus which is more prevalent upon the blackberry but sometimes attacks the raspberry. Numerous blisters appear

upon the leaves which contain orange colored spores which germinate and attack the roots. The mycelium of the fungus lives through the winter so a plant when once infested might better be destroyed at once and when the rust is too bad the entire patch should be removed.

Another disease is the anthracnose or cane rust which affects the cane appearing first as gray sunken spots with a dark ring around each. These spread and run together causing the berries to dry up and wither and often killing the canes. No very satisfactory treatment has yet been devised. Washing the canes in winter with a solution of copper sulphate (one pound to thirty gallons of water) is recommended. Sprays

of Bordeaux mixture at intervals of two to three weeks after the leaves are formed and after summer pruning has proven beneficial.

Insects. The raspberry cane borer is a small slender black beetle about one half inch long which appears in June and lays its eggs in punctures which it makes in the cane with its mandibles. The larva bores its way down the pith of the cane to the root where it enters the ground and transforms to a pupa. The affected canes wilt at the tip and should be cut out and burned.

The raspberry saw fly is a black bodied four winged insect which lays its eggs in the tissues of the lower surface of the leaves. The

eggs hatch in from seven to ten days and the larva a green worm about three fourths inch in length with body ornamented with spiny tubercles, proceeds to devour the entire leaf with exception of the midrib and veins. There is but one brood and it can easily be controlled by use of a Paris green spray; or hellbore in case the fruit is formed.

Varieties. A few of the many varieties of raspberries which may be recommended are Courath, Doolittle, Kansas, and Soughegan among the black sorts, and Cuthbert, Turner, and Kerstine among the reds.

Blackberry.

The blackberry is very similar to the raspberry in its habits of growth.

culture, etc. but it is a rather ranker grower hence should be set farther apart. The rows should be about eight feet and the plants two to three feet apart in the row. Keep the plants well pruned as described for the raspberry.

Among the varieties of blackberries, those worthy of recommendation are, Wilson's Early, Kittittinny, Snyder, Taylor, Early Harvest and Dorchester.

The diseases and insects affecting the blackberry are practically the same as those affecting the raspberry and are subject to the same treatment.

Grape.

The grape is one of our most reliable fruits and owing to its

hardiness and ease of cultivation is worthy of a large amount of attention when the farmer is planning his fruit-garden. It succeeds well upon a large variety of soils but perhaps reaches its highest degree of perfection upon a moderately rich loamy soil.

The most common method of propagation is by ripe wood cuttings although layering is sometimes practiced, and even seeds and grafting are sometimes resorted to. Cuttings are made from ripe wood in the fall making the cuttings eight to twelve inches long and containing two healthy buds. Make the lower cut directly beneath the bud and the upper cut some distance above the upper bud. These cuttings should

be stored in a cellar in damp moss until spring when they should be set in the ground before the buds swell. Plants are usually set in the permanent rows when two years old.

When layering is practiced a cane six or seven feet long is placed in a trench two to four inches deep and long enough to hold the cane. The buds will send out roots and the cane may be cut from the parent plant the same season. This is a sure method of propagating the grape. Plants may be set either in the spring or in the fall but in our climate the former is preferable if set early. If set in the fall, they should be covered with straw during the

winter. The distance for setting will depend somewhat upon the variety, but strong growing varieties should be set eight feet apart in the row, and the rows be at least six feet apart. The top of the young plant should be pruned down the first year to keep the leaf surface in proportion to the root system. The manner of training the vines for the Kansas farmer's fruit-garden should be what is known as the low renewal system. Two or three canes from each plant is usually enough to leave the first season. One of the cheapest and most satisfactory trellises consists of two smooth wires stretched horizontally, the lower of which should be about fifteen to

twentyfour inches above the ground and the second one about the same distance above the first. The canes should be tied up to these wires with soft cloth.

Pruning may be done any time after the leaves fall until the buds swell in the spring. The object in pruning is to get new canes as near the base of the vine as possible. From three to five canes should be left and these cut to three to five feet long. Good clean cultivation should be given.

Varieties. The list of varieties of the grape is very long and if given in full would be very confusing to the average man hence only a few of the standard varieties will be given here. The Concord is

perhaps the oldest and most widely grown variety. Moore's Early and Warden are seedlings of Concord, but are earlier and of better quality. Brighton is a variety worthy of a place in the fruit garden. Among the white varieties are Diamond, Niagara^{and} Packington.

Diseases. Black rot is a fungus disease which attacks the leaves and fruit and is found sometimes even upon the canes of the grape. Upon the leaves the disease forms reddish brown blotches situated between the veins.

The fruit becomes discolored shrivels upon the stem and is covered with spore bearing pimples. The winter is passed within the shriveled

fruit, dead leaves or canes. Ordinary pruning and burning of the bush will destroy the greater part of the disease. All trash and leaves should be raked and burned. The vines may be given a wash of copper sulphate (one pound to thirty gallons of water) during winter. During the growing season Bordeaux mixture may be used as a spray.

Anthracoise is first noticed as a dark sunken spot upon the canes. As the spot enlarges the center turns gray and the edges are darker and purplish. Similar spots are developed upon the leaves and fruit the berries becoming hard and dry. The fungus is similar in its life habits to the black

rot and may be treated in the same way however it is rather harder to control. A wash of iron sulphate mixed in the proportion of one hundred parts water to one part sulphuric acid and one part iron sulphate, is preferable to the copper sulphate wash for this disease. This wash blackens the canes and if any parts are not thus affected they should be washed again.

Downy mildew is another fungus disease but differs from the preceding ones somewhat. It is first noticed as downy spots upon the leaves, canes, or fruit. The affected fruit turns brown and remains hard. The disease spreads rapidly in moist warm weather and where only a few bunches are

fruit or a few leaves are affected, it is best to remove and burn them. The same treatment as recommended for the previous diseases is good for this.

Powdery mildew grows upon the surface of the leaves and is much easier to control than the other fungus diseases. Sulphur dusted over the vines will hold this in check.

In severe cases the sprays previously recommended, are effective for this disease.

Insects. The grape phylloxera is a small plant louse of which there are two forms, one works upon the roots causing excrescences, the other works upon the leaves causing gall-like irregularities on the lower surfaces. It does not

cause serious injury to the native vines but is very injurious to European species.

The grape vine flea-beetle is a shining beetle about one sixth of an inch long of a steel blue to purple color. These are very destructive to the foliage when present in large numbers. All leaves and rubbish should be raked and burned. As the buds open in the spring spray the vines with Paris green one pound to one hundred fifty gallons of water to kill the larva which are feeding upon the vines.

The rose-chaffer or rose-bug is a long legged, light brown beetle which appears in great numbers in certain seasons and is very destructive to the flowers and foliage of the grape.

It is a very difficult insect to combat as arsenicals do not act quickly enough. Great numbers may be caught in nets and destroyed.

Grape vine leaf hopper is a minute insect about one eighth inch long. The adult jumps or flies when the vines are disturbed. They first appear in May and are present until the leaves fall and then spend the winter in rubbish, hence all such should be burned. This is a sucking insect and hence poisonous sprays will not be effective. One of the best methods of combatting them is to make a shield by stretching a cloth over a frame and spreading upon it, some sticky substance as tar or resin. Carry this along the row and disturbing the

vines many of them may be caught.

The presence of the grape vine cane borer is first noticed by the appearance of saw dust or later by holes at the base of the canes.

With well cared for vines it is held in check by burning the trimmings as soon as pruned in the fall.

The farmer who is too busy in the pursuit of wealth to bother with a fruit-garden is missing one of the greatest privileges and enjoyments of farm life. A fruit-garden such as has been suggested, and cared for as has been directed upon the preceding pages of this article, will not require very much time and will furnish fresh fruits for the farmer's table, which, aside

from being a palatable luxury, will save enough on doctor bills to pay for all the labor required for its care and cultivation. Where a family of children is being reared the fruit-garden is doubly important. It will serve to keep the boys out of their neighbors fruit-garden and create a love for home and farm life. Then let the farmer who has not a fruit-garden set aside a small plot of ground, fence it, prepare the soil, and set out small fruits as has been directed. Get the children interested in the work and he will soon realize a greater profit both in cash saved and in satisfaction from that area of land than from any other equal area on the farm.