IDAHO AGRICULTURAL EXPERIMENT STATION

Strawberry Culture IN Idaho

By
C. C. VINCENT
Moscow, Idaho

Bulletin No. 70 March, 1911

Digest.

This bulletin is a report on varieties of strawberries that have been tested at this Station for the past three years. Detailed descriptions of eighteen kinds accompanied by illustrations are given. Two tables are given setting forth the season of ripening. Ten varieties ripen their fruit in early to mid season and eight in the late season.

Varieties vary widely in behavior under different environments. The list reported upon at this Station supplemented by varieties grown in the several sections will aid the prospective growers and new settlers in making intelligent, safe and suitable selection for their plantations. Varieties not recommended in the lists should be tested in a given locality before planted extensively.

Unlimited possibilities present themselves to those wishing to engage in the business. The report shows that in the several divisions of the state, ideal conditions exist for the growing of this berry. The strawberry is a fruit that can adapt itself readily to almost any soil and climate of the state, thus enlarging its field of usefulness. Thus far the demand has been greater than the supply. More attention should be given to strawberry growing in the state.

The yield per acre of course varies according to the general care given the plantation. One hundred to three hundred crates of berries per acre have been harvested in the different sections of the state. The price per crate, however, being controlled largely by the law of supply and demand. Some seasons as high as $2.00 to $3.00 a crate is realized. Many growers are netting from $300 to $500 per acre.

Culture methods as followed by the leading growers are discussed at some length. Those interested are given detailed directions regarding the proper selection of a location. Several factors such as site, slope, irrigation, transportation facilities, influence largely in determining this feature of strawberry management. It is very essential that the grower make a careful study of the sex of plants. This phase of the subject is emphasized in the description of varieties. He will find on investigation that strawberry blossoms are of two kinds; (1) bisexual, (2) pistillate. Plants having pistillate flowers will not set fruit when planted alone, thus the practice of alternating with two, three, or four rows of the bisexual. A thorough understanding of this point will enable the grower to make his selection of varieties intelligently.

A report of the several planting systems such as the hill, the hedge row, the matted row, etc. is made and the gower cautioned to select the best one suited to his conditions. The planting suggestions and general care of the plants should be followed as closely as possible to meet with the best success. Following the planting directions, the after treament of the plants in irrigated and non-irrigated regions is emphasized. In the irrigated sections the water should be used judiciously. Intensive cultivation is essential in the humid regions to stimulate a good healthy plant growth. Explicit directions on harvesting and marketing are given.

Strawberry Culture in Idaho.

Interest in Industry.—A great many requests for information relative to the growing of strawberries—varieties best adapted to certain conditions— have been received at this station. The increasing demand for such information has led to the publication of this bulletin. It is the purpose of this report to set forth in concise form the methods of successful strawberry culture as followed in the different sections of the state. The growing of strawberries is gradually becoming an important commercial industry in many parts of Idaho. It is becoming a specialized business and as such requires specific treatment. Notwithstanding its peculiarities we would urge upon every farmer to set aside a certain amount of ground for its production, selecting varieties adopted to his locality. If he does not wish to grow them on a commercial scale, he owes it to himself and family to see that his table is supplied with good and lucious fruit.

Interest in the strawberry industry has received quite an impetus during the past few years on account of (1) the rapid settlement of the state, (2) the transformation of cut over land, (3) the reclaiming of new land, due to the completion of large irrigation projects. In the southern part of the state water has been conducted upon the land and thousands of acres of desert lands have been made fertile and productive. Under the influence of irrigation and southern climate, the strawberry has responded loyally and compares favorably with other horticultural products grown. It has not as yet, however, taken the place it should in the developement of this state.

The Outlook.—The strawberry can adapt itself readily to almost any soil and climate, thus enlarging its field of

usefulness. There is no fear of over production as it is a crop that finds ready sale in all markets, and the perfecting of the refrigerator car, crates, etc., has enabled the growers to ship to distant markets; thus the demand is greater than the supply. From the commercial standpoint it is a very lucrative business for as high as three to five hundred dollars net per acre, has been received by specialists in this business. One man can very easily cultivate and care for three acres of strawberries.

The strawberry industry compares very favorably with the apple industry. When comparing the relative age of maturity of the two the odds are largely in favor of the strawberry grower, since it takes about eight years for the orchard to come into profitable bearing, and about two years for the strawberry plantation. As it is an industry that offers quick returns the two may go hand in hand. While waiting for the young orchard to come into bearing the space between the tree rows may be used to good advantage by growing strawberries. (See Plate 1.)

The Station Work.—To aid in solving some of the problems confronting the strawberry growers a number of experiments have been undertaken by the station. These problems which include variety tests have been in progress for the past three years. It is believed enough information has accumulated to warrant its publication. Eighteen varieties have been grown and are reported upon in this publication.

Since conditions vary so greatly throughout the state we have secured data regarding cultural methods, varieties grown, etc., from the progressive growers in the different sections. These men have responded quite generously to our inquires and from their experience in addition to our experimental records we have been able to compile the following data, which will be of value to those going into this business.

PLATE 1.
L. A. BLACKMAN'S STRAWBERRY PATCH Lewiston, Idaho.
Growing strawberries between the tree rows is very profitable.

Sections Defined.

At the present time there are seven more or less prominent sections of the state quite clearly defined. These sections in the main have somewhat distinct soil features. A wider variance however is noted in the climatic conditions.

A few remarks concerning the soil and climate in these several divisions will aid the prospective settler in selecting a suitable location for engaging in the strawberry business.

Pan Handle Section.—The section commonly spoken of as the Pan Handle, comprises the northern part of the state, and includes all of Bonner, a large portion of Kootenai, and part of Shoshone County. This region lies to the west of the Bitter Root and Coeur d'Alene Mountains, and varies in altitude from 1000 to 4000 feet. According to the report of the United States weather bureau, the normal precipitation ranges from 20 to 30 inches.

The climate of the Pan Handle is rather mild in summer, and not severe in winter. The soils are of a glacial

formation, or lake bed deposit, and vary in color from a red to a dark loam. These soils are capable of retaining an ample supply of moisture, when intensive cultivation is practiced, thus eliminating the necessity of irrigation. A large portion of this region has been covered with timber and recently logged over. The soil was found to contain more or less acid, and a liberal application of lime may be found beneficial.

To the prospective strawberry grower, the country in the vicinity of Couer d'Alene and Sandpoint offers many attractive features, aside from soil and climate. These sections have excellent transportation facilities, for there are from two to three competing trans-continental lines which enables the grower to secure cheaper rates, thus allowing him to ship his berries to advantage.

The Palouse Country.—This region includes Latah and a section of Kootenai County, and is located in the northwestern part of the state at the base of the Pan Handle. It has a humid climate, having an annual precipitation of 20 to 30 inches. The elevation varies from 1000 to 3000 feet. The contour of the country is rolling. The soil is of a basaltic formation, very fine in texture, and holds moisture remarkably well. The deep, moist, friable soils characteristic of this region are admirably adapted to the growing of the strawberry. Frequent cultivation during early spring and summer will aid the strawberry growers in obtaining very satisfactory yields.

Lewiston Valley.—The section known as the Lewiston country comprises Nez Perce, part of Idaho, and a portion of Latah County, being located in the central part of the state. The lowest point in the state is in the valley of the Clearwater at Lewiston, having an elevation of 700 to 750 feet. To the south and east of the Clearwater, there is a gradual rise in elevation, reaching an altitude of 3000 feet in some parts. The annual precipitation ranges from 12 to 20 inches. Certain parts of this country require irrigation, but at the present time this is not practiced to any great extent outside the vicinity of Lewiston.

The climate, being mild in summer and pleasant in win-

ter, presents conditions especially favorable to the production of the strawberry. The soil is very easy to work, being of a loose friable nature, and described as a sandy volcanic ash of basaltic origin. It is quite rich in all the elements neccessary for plant growth, the only deficiency being in nitrogen, which can be easily supplied by giving a liberal application of barn-yard manure, or the growing of leguminous crops.

The Payette Valley.—The Payette Valley, one of the oldest horticultural districts in the state, lies in the southwestern part, near the Oregon border. The valley comprises part of Canyon and Washington Counties. The soil is a volcanic ash and varies from a light sandy soil on the uplands to a heavy dark loam in the valleys. Under irrigation these soils are admirably adapted to the growing of the strawberry and at the present time many small acreage farms are being planted. It is not unusual for growers in this region to net from $300 to $500 per acre.

The annual precipitation ranges from 10 to 20 inches, thus the necessity for irrigation. The altitude is from 2000 to 3000 feet. Since the strawberry can be grown to prefection, this region offers many attractions to the strawberry enthusiast. The transportation facilities are such that the grower is enabled to ship his berries to distant markets without much difficulty. Excellent local markets are within easy reach of all, and thus far berries have not been grown in sufficient quatities to supply the demand.

Boise Valley.—This valley lies to the east and south of the Payette Valley, and comprises a region in the south central part of the state. With the combination of soil, climate and water that this region possesses, strawberries grow in profusion. A glance at Plate 28 is sufficient evidence to substantiate this statement. The climate is very mild. The long summer days coupled with a long growing season makes this section ideally adapted to the raising of strawberries.

The soil is very rich, being volcanic ash of a decomposed basaltic formation. Throughout the valley sandy loamy soils abound. The elevation varies from 2000 to

3000 feet. This region according to the U. S. weather bureau report, has an annual precipitation of 10 to 15 inches. Irrigation is depended upon to mature the crops grown in the valley.

Idaho Falls.—The Idaho Falls region comprises Bingham and Fremont counties, and lies in the southern and eastern part of the state. This is a comparatively new section, and the strawberry industry as yet, is in its infancy. Until recently the berry has been grown only on a small scale by a few of the old settlers, but now many new comers are setting out plantations. The industry in this locality offers many inducements and the strawberry should be more widely planted for the grower has excellent local markets for the disposition of his fruit.

The soil is of a lava formation, being sandy in nature, loose and easy to work. This region depends upon irrigation for the maturing of its crops as the annual rainfall is only 10 to 15 inches. The elevation ranges from 4000 to 6000 feet.

Twin Falls.—The Twin Falls country is a newly developed section which lies in the southern part of the state, near the southern border. Here large areas are being reclaimed and put under the plow. The strawberry can be grown quite successfully in this vicinity. The soils are of a lava formation and sandy in nature, which is characteristic of a large region in the southern part of the state.

The elevation varies from 3000 to 5000 feet, and has an annual rainfall of 10 to 15 inches. The climate is described by Mr. E. L. Wells, section director of the U. S. weather bureau, as follows: "In that part of the great Snake River Valley, lying above Shoshone Falls, the climate is characterized by moderately warm summers and moderately cold winters."

Soils and Preparation.

Kind of Soil.—As can be seen by the foregoing remarks, the strawberry thrives on a wide range of soils. This plant, can, however, adapt itself to almost any type of soil found in the state. In fact, a soil that will produce good field crops is satisfactory for growing the strawberry. It seems to be the concensus of opinion among the growers through out these different regions that the light, warm, sandy moist soils produce the best crops. Mr. W. H. Garner, a progressive strawberry grower of Preston, Idaho, says: "The soil which seems the best adapted for growing strawberries is a sandy loam. My plants are grown on a sandy loam, and they seem to be perfectly at home as they are large, strong and healthy. Heavier soils are good, but require more cultivation, as they bake hard ,especially after rain or irrigation."

Preparation.—To meet with the best success the ground should be placed in excellent condition before the plants are set. Deep plowing is essential. The grower should endeavor to put the surface of the soil in a mellow condition. To accomplish this he will find the disc harrow and clod masher serve a useful purpose. The strawberry thrives best on a soil containing large amounts of plant food, hence if these elements are lacking they should be added. Most all the successful strawberry growers give their land a good application of stable manure in the fall and plow early in the spring.

Location.

Site.—The proper selection of a site is one of the important factors to be considered in successful strawberry culture. Neglect in this respect often results in failure. The following points are well worth considering in making a selection. Low lands, lower than the surrounding area, should be avoided as the cold air seeks these places making them more subject to frost than those slightly elevated. Air drainage is as important as soil drainage. When slightly elevated places are selected good air drainage is insured.

Slope.—Considerable importance should be given to the matter of selecting a suitable slope for the berry plantation. A southern aspect is preferred when early berries are desired. An exposure to the south insures a warm soil, thus maturing and ripening berries in advance of any other slope. However, discretion should be used if there is danger of early spring frosts or excessive heat. In either case a northern or eastern exposure should be selected, as the ground is cooler, thus retarding the blooming period and giving more moisture.

Irrigation.—Since irrigation is such an important factor in the procuring of large berries the location should be carefully considered. It is very essential that the ground be thoroughly pulverized and leveled before planting, as grading is an important factor in irrigation. Level land is usually given the preference by most growers, but slightly elevated places can be utilized to good advantage by planting on contour lines. The irrigation furrows can be run in such a way as to prevent washing of the soil. Strawberry growers in the Hood River Valley, Oregon, are meeting with remarkable success with this system. Steep grades should be avoided.

Transportation.—Proximity to shipping stations, if berries are grown for distant markets, or the nearness to local markets if catering to the local trade are points to be considered in selecting a location for a berry plantation. Strawberries cannot stand rough treatment, and if hauled a few miles over a poor road usually reach their destination in poor condition. If the grower intends to go into the business on a commercial scale and expects to grow berries for distant markets it is well to locate where there are competing lines of transportation. This usually enables him to secure cheaper rates. A perishable product like the strawberry cannot be grown too far away from the place of consumption unless special means, such as ice refrigeration, has been secured to stay its ripening process.

Selection of Varieties.

What the Market Prefers.—The selection of the proper varieties is an important question to the one contemplating the growing of this fruit. His success depends largely upon this as many varieties are quite local in their requirements. The grower must also decide whether the berries are to be grown for market, home use, or for the cannery. The shipping quality of the fruit is of prime importance when growing berries for the market. Some varieties are fine shippers, though not one of the best flavor and quality, but no trouble is experienced in disposing of them. In growing berries for this trade they should be firm, regular in form, possessed of pleasing color, and large. The well selected berries always bring the best prices in the market. Mr. J. E. Butler, a progressive strawberry grower of Lewiston, in commenting upon this subject says: "My observations are that most people prefer a dark red berry and one that is red to the core, as it generally has the best flavor.

For Home Use.—When growing berries for home consumption it is well to select those that will ripen their fruit in succession throughout the season. This will enable the farmer to be well supplied with delicious berries during the summer. Particular attention should also be given the bearing qualities of the fruit when selecting for home use. Some varieties are prolific bearers, but are very poor shippers. The flavor, size and color are also points that should be borne in mind when selecting varieties for the table.

For the Cannery.—There are many canneries established in different sections of the state that could consume all the berries grown, but the demand has been greater than the supply. The canneries prefer a berry that is firm and red throughout. Those that are soft and fall to pieces after being put up are not desirable to grow for this trade. Varieties grown for the general market are very good for canning purposes.

The following varieties are grown quite extensively throughout the different sections of the state:

Pan Handle Section.

Varieties Grown.—Pride of Michigan, Parson's Beauty, Sharpless, Senator Dunlap, Climax, Cardinal, William Belt, Brandywine.

Reccommended Varieties for Commercial Planting.—Parson's Beauty, Clark's Seedling, Senator Dunlap, William Belt, Glen Mary, Brandywine.

Palouse Country.

Varieties Grown.—Sample, Brandywine, Gandy, William Belt, Senator Dunlap, Clark's Seedling, Rough Rider, Marshall.

Recommended Varieties for Commercial Planting.—Gandy, Clark's Seedling, William Belt, Senator Dunlap, and Marshall.

Lewiston Valley.

Varieties Grown.—Warfield, World's Wonder, Cresent, Glen Mary, Magoon, Tennessee Prolific, Dewey, Wilson.

Recommended Varieties for Commercial Planting.—World's Wonder, Warfield, Clark's Seedling, Glen Mary and William Belt.

Payette Valley.

Varieties Grown.—Senator Dunlap, Warfield, Glen Mary, Aroma, Parker Earle, William Belt and Jumbo.

Recommended Varieties for Commercial Planting.—Senator Dunlap, Warfield, Glen Mary and William Belt.

Boise Valley.

Varieties Grown.—Jumbo, Climax, Salzer, Magoon, Haverland, New York, William Belt, Dorman, Pride of Michigan, Parson's Beauty, Parker's Earle, Sample, Jessie, Glen Mary, Klondike, Miller and Warfield.

Recommended Varieties for Commercial Planting.—Climax, Magoon, Dorman, Parson's Beauty, Pride of Michigan, New York, William Belt and Glen Mary.

Idaho Falls.

Varieties Grown.—Jumbo, Wilson, Sample, Steven's Late, Grandy.

Recommended Varieties for Commercial Planting.—Jumbo, Senator Dunlap and Gandy.

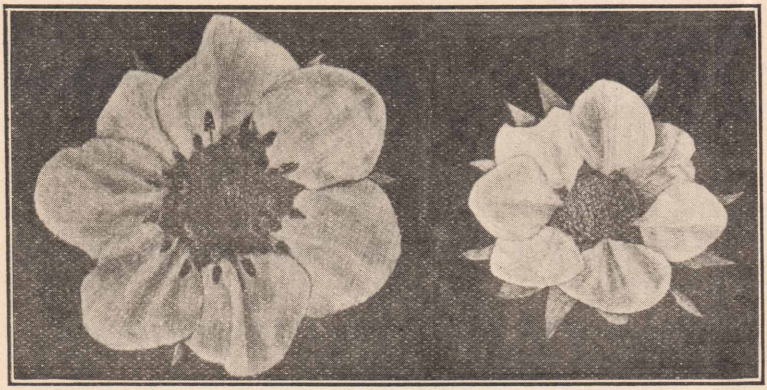
Twin Falls.

Varieties Grown.—Marshall, Senator Dunlap, Warfield, Gandy, Aroma, Glen Mary, William Belt and Jacunda.

Recommended Varieties for Commercial Planting.—William Belt, Glen Mary, Marshall and Jacunda.

Pollination.

Bi-Sexual and Pistillate Flowers.—In selecting varieties for the plantation it is well for the grower to become familiar with the sex of the plant. Strawberry plants fall into two classes when the flower characters are compared; (1) bi-sexual; (2) pistillate. The plants known as bi-sexual, or perfect, have the power of producing both stamens and pistils. The pistillate plants produce pistils only. Plate 2 Fig. 1 shows a bi-sexual strawberry blossom, Fig. 2 shows the pistillate blossom. Some growers have been unsuccessful in growing those varieties that fall under the pistillate class because they did not plant them in close proximity with perfect kinds to insure fertilization. Such varieties as Mark Hanna, Haverland, Buback, President, Sample, etc., should not be planted alone.



(After Macoun.)

Figure 1, Perfect Flower. Figure 2, Imperfect Flower.

PLATE 2.

Note the kinds of blossoms prouced by different varieties. William Belt produces blossoms as shown in Figure 1. Mark Hanna flowers resemble Figure 2.

Alternating varieties in rows.—To insure complete fertilization the varieties that fall in these two classes should be alternated in the rows. There is some diversity of opinion among the growers as to the proportion of perfect and imperfect plants that should be planted. Excellent results have been obtained when one row of the pistillate is alternated with two, three, or four rows of the bi-sexual. Some authorities in discussing the subject recommend planting two rows of the pollinizer with two of the pistillate. Varieties that bear blossoms about the same time should be selected for this purpose.

Planting.

Selection of Plants.—Care should be exercised in the selection of the plants for the new plantation. If bought from a strawberry dealer the grower should insist on having the best. Only plants that have developed strong crowns and healthy root systems are capable of producing large crops. Hardly two plants out of thirty develop large thrifty roots, hence the necessity of careful selection. Only plants formed by runners should be used for this purpose. The

selection of plants from the old bed should be avoided as much as possible, as continued fruiting saps the vitality, thus preventing, to a marked degree, the development of strong runners.

Treatment before Planting.—When plants have been ordered through a strawberry firm they usually arrive in small bundles packed in damp moss. Plants are very seldom set out on their arrival, so in order to prevent unnecessary loss by moulding or drought, the bundles should be opened and "healed in" immediately. In case the plants have become abnormally dry, immerse them in water up to their crowns for a few minutes and then heal them in. The healing in process is a very simple one. All that is necessary is to dig a trench deep enough to cover the roots of the strawberry and lay in the plants close together in a single row with roots spread out. The soil should be presssed firmly around them leaving only the crowns and leaves exposed. This will prevent drying out. When the time arrives for the transferring of the plants to the field it is very essential that they be protected so as not to subject the roots to the action of the wind. Drying out of roots is very detrimental to the life of the plant. As a means of precaution many growers practice dipping the roots in water and placing the plants in small bundles then wrapping with a damp cloth.

Pruning the Plant.—The plants should never be placed in the field just the way they have been received from the nurseryman. Experience has taught us that it is a good plan to correctly prune the plant before setting, as it will respond more quickly in the spring and make a more vigorous growth than one carelessly pruned or left unpruned. In preparing the plants for setting all the diseased and dead leaves and all large ones, except one or two of the thriftiest, should be removed. A removal of the leaves prevents excessive transpiration. To establish equilibrium between top and root it is a good practice to remove about one third of the root. Plate 3, Figures 1 and 2, represent a pruned and unpruned plant. As shown in Figure 2, all the leaves except one have been removed and the roots shortened back to the line A—B.

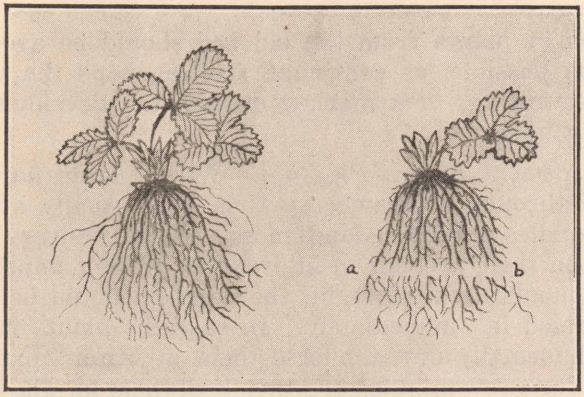


PLATE 3.

Figure 1, Plant Unpruned. Figure 2, Ready for Planting.

Pruning is essential in Strawberry growing.

Time of Planting.—Fall and spring planting are both practiced in this state. However, fall planting is not advocated in many sections, although permissible in regions having ample rain fall. Spring time has the preference by the majority of the growers, as at this time the soil is moist, warm and in better condition to be worked. When set carefully the plants will respond with a more rapid growth thus producing the following season a large crop of berries for the grower. In discussing this subject Mr. Garner, says: "My experience has proved that spring planting is the most satisfactory, for the reason that a plant set in the fall does not have time to produce a large crown system, which is essential to a large crop of berries."

Setting the Plants.—The rows should be evenly spaced and marked out. If possible it is a good practice to have the rows run north and south, as the berries will color up much better. Many devices are used to mark out the rows. A simple one can be made by nailing some two by four inch pieces together at the proper distance and attaching a handle or tongue. A shovel toothed cultivator can also be used for this purpose. After marking, the grower is ready to set his plants, and this may be done by the use of a trowel, dibble or spade. The hole is opened and the plant

placed in at the proper depth, with the roots spread apart like a fan, as shown in the illustration, (Plate 4). The soil should be pressed firmly against the roots of the plant. Plate 4, Figures 1, 2, 3, 4, show the proper and improper methods of setting. Figure 1 represents the proper way of setting the plant as the roots are well spread out and the crown placed just at the surface of the soil. Figure 2 represents too shallow planting. In this case the crown is exposed much more than is necessary and the result will be more or less drying out. Figure 3 shows the opposite extreme. The crown of the plant is set too deep and there is danger of the bud not pushing itself through the soil. Figure 4 also shows careless planting as the roots are bunched entirely too much. Many plants are lost annually by careless planting.

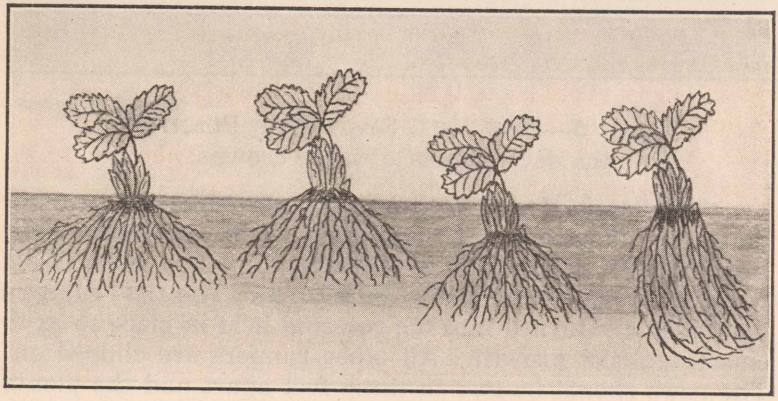


PLATE 4.

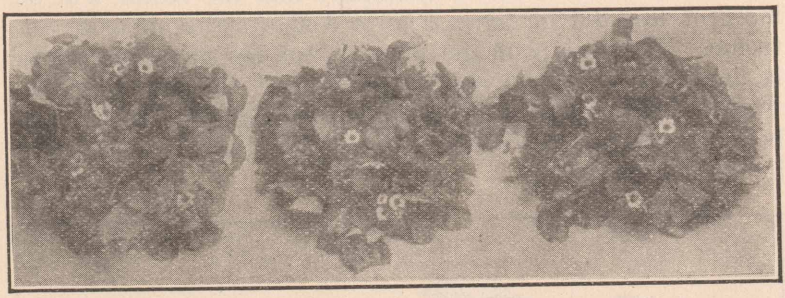
Figure 1 Plant set properly. Figure 2 Set too shallow. Figure 3 Set too deep. Figure 4 Roots carelessly bunched

A plant will respond more readily in spring to growth when planting is done correctly.

Systems of Planting.

The Hill System.—This system consists of growing the single plants in rows. No runners are allowed to form and in this way the full strength of development is thrown into the plant. This causes the plant to stool out and develop additional crowns, which tend to produce fruit stems. If

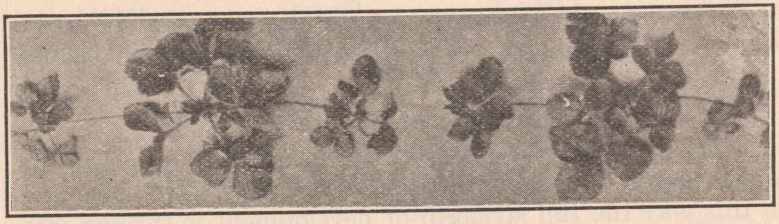
planted on the square three feet apart, the grower is enabled to work the soil both ways, thus eliminating hand cultivation. As some growers prefer to cultivate only one way, the rows should be two and a half to three feet apart and the plants from 12 to 18 inches apart in the row. Larger berries are grown by this system than the others. The following illustration shows this method of planting. (See Plate 5).



(After R. M. Kellogg.)

PLATE 5—THE HILL SYSTEM OF PLANTING.
Note the development of large crowns.

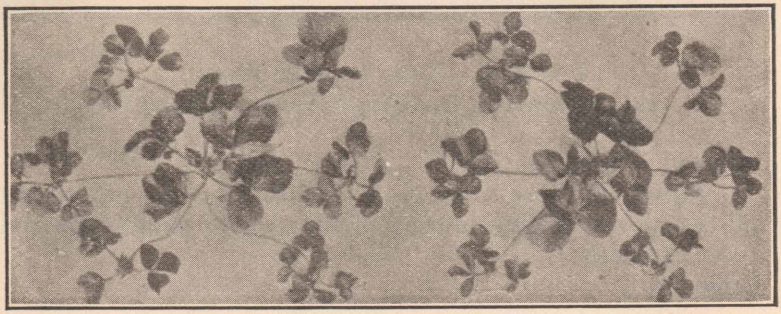
The Single-Hedge Row.—In this system enough runner plants are allowed to grow and form a continuous row. The usual method followed is to allow each mother plant to set two runners as shown in the illustration. The first runners developed are turned into the row and held in place so as to encourage root growth. All other runners are clipped off. The rows should be two to three feet apart and the plants from 20 to 30 inches apart in the rows. (Plate 6.)



(After R. M. Kellogg.)

PLATE 6—THE SINGLE-HEDGE ROW.
A continuous growth of plants is formed by this system.

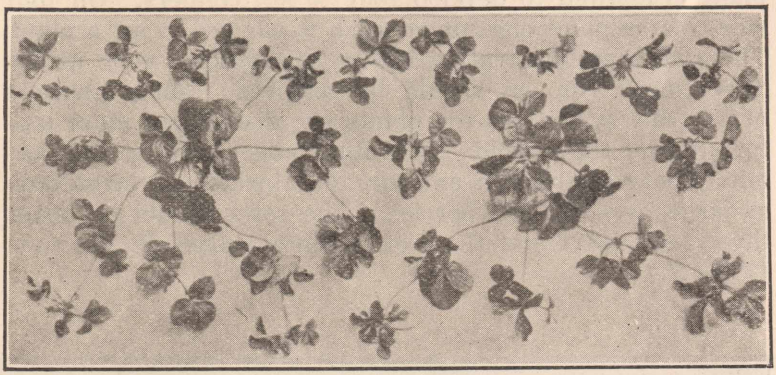
The Double-Hedge Row.—By this system the mother plant is allowed to develop four to six runners. On four sides of the plant one runner each is allowed to set a plant. The following illustration shows this system very nicely. Superfluous runners should be removed. Many growers prefer this system, as the plants are distributed more uniformly over the ground. This eliminates crowding and permits plenty of sunlight and air, thus insuring a large crop of large, well formed berries. The rows should be about three feet apart and the plants thirty inches in the row. (Plate 7.)



(After R. M. Kellogg.)

PLATE 7.—DOUBLE HEDGE ROW.
The plants are distributed uniformly over the ground.

The Matted Row.—The matted row system also has its advocates throughout the state. Less labor is involved and the quantity of the fruit greater. It is a system that is becoming quite popular in sections where berries are grown for the cannery. All runners are allowed to develop. The cultivator is run only in one direction, and this enables the grower to narrow the rows as he sees fit. The proper distance apart is from three to three and a half feet between rows, and from 20 to 30 inches between plants. The following illustration shows the matted row system. (Plate 8.)



(After R. M. Kellogg.)

PLATE 8.—THE MATTED ROW.
A system that is a favorite in some parts of the state.

Plants Required Per Acre.—The following table will aid the grower in determining the number of plants required to set per acre:
Table No. 1.

Plants Per Acre		*Plants Per Acre*	
Distance	No. Plants	Distance	No. Plants
1x1 foot	43560	1 2-3x3 feet	8712
1x2 feet	21780	2x1½ feet	14520
1x3 feet	14520	2x2 feet	10890
1¼x1½ feet	23232	2x2½ feet	8712
1¼x2 feet	17424	2x3 feet	7260
1¼x3 feet	11616	2¼x2¼ feet	8604
1½x1½ feet	19360	2¼x2½ feet	7744
1½x2 feet	14520	2¼x3 feet	6453
1½x2½ feet	11616	2½x2½ feet	6969
1½x3 feet	9680	2½x3 feet	5808
1 2-3x1 2-3 feet	15681	3x1½ feet	9680
1 2-3x2 feet	13168	3x3 feet	4840

Treatment of Plantation In Irrigated Regions.

The Young Plants.—While the strawberry is a plant that requires a great deal of water, the tendency is to irrigate entirely too much. The practice of allowing the water to run day and night should not be tolerated, since in this way many of the elements necessary for plant growth are washed out of the soil and other injuries result. The first summer after the plants are set they should be irrigated as little as possible. When the ground shows signs of drying out the first application should be made. The number of applications, however should be governed largely by the moisture requirements of the different soil types. A few copious waterings, followed by frequent stirrings of the soil to conserve moisture, is better than many shallow irrigations. Intensive cultivation should be practiced after every application.

The Bearing Plants.—For early berries the water should be kept off just as long as possible in the spring. An application of cold water tends to chill the ground thus retarding to a certain extent the ripening of the berries. Cultivation should continue until the plants begin to throw out blossoms then, it should cease. During the fruiting season frequent irrigations are advised. Commenting upon this point, Mr. J. E. Butler says: "For bearing plants I irrigate as soon as the ground begins to get dry, and after they begin to ripen I water two or three times a week as it takes water to make big berries."

The method of applying the water varies in different sections. The majority of the growers of this state do not advocate flooding. The most satisfactory way is to lead the water close to the rows in small rills. Better results are obtained by running a small amount of water over a long period on soils that have a tendency to puddle than by running a larger amount for a less time. While on the other hand, the coarse open soils should receive copious waterings of shorter duration. During the heat of the

summer water has a cooling effect on the soil. Fall irrigation is practiced in some sections where there is a possibility of a dry winter.

Treatment of Plantation in Non-Irrigated Regions.

The Young Plants.—Just as soon as the young plants are set out in the spring cultivation should begin. This should be continued whenever needed up to the first of September as it is very essential that strong healthy plants be developed the first year. Plants that are neglected during the first season seldom amount to much. It is highly essential that the soil be kept mellow and a dust mulch preserved in order to conserve the moisture. One of the best implements for this work is a wheel hoe or planet junior. This should be run over the plantation every ten days or two weeks or following every hard rain as this keeps the soil loose, friable and prevents a crust forming. The weeds should never be allowed to get a start in the plantation as they rob the plants more or less of the elements necessary for plant growth. However, if the grower begins operations just as soon as he is able to work the soil in the spring little trouble will be experienced.

There appears to be some difference of opinion regarding the summer treatment of young plants. Some growers say to let the plants bear the first season, but the majority are discouraging this method. For the perfect development of the plant no buds, or blossoms should be allowed to develop the first season, as the plant thus has a better chance of building up a good strong crown and root system. Just as soon as a bud appears it should be pinched off. If this method is adhered to large crops will be the result.

The Bearing Plants.—To meet with the best success bearing plants should receive as good care as the young plantation. With the fruiting plants intensive cultivation is essential to mature a large crop of berries. Frequent stirring of the soil aids in conserving moisture, and prevents it from drying out. No time should be lost in perform-

ing this operation. Just as soon as the ground is tillable in the spring the narrow tooth cultivator should be started and if the season is dry run continuously. A few rules to remember in cultivating the bearing plants are: (1) that the strawberry is a shallow rooted plant, hence the cultivations should be shallow so as not to disturb the fibrous roots; (2) a dust mulch should be obtained, as this prevents undue evaporation; (3) grass and weeds seriously check the growth of the plants by robbing them of nourishment, thus they should never be allowed to get a start. Thorough clean cultivation is the secret of success in strawberry culture.

Harvesting.

When to Pick.—The strawberry is a fruit that requires a great deal of care in handling. The patch should be gone over every other day—every day if necessary—to insure fancy fruit. For long shipment, the berries should be picked while still firm, and colored over with red on the upper side, blending into a light pink on the under. In discussing the subject of picking Mr. J. E. Butler, says: "The only way to tell when berries are ready to pick, is by experience, picking them greener for shipping than for the home market. I prefer picking them a little green for all purposes, as they will ripen, while if picked ripe, and hauled a few miles, set around the store awhile, the customer gets mainly juice."

The berries should never be picked if the vines are wet as moisture invites fungi and when placed on the market are uninviting and sell at a disadvantage. If allowed to stand in the sun for any length of time, a premature breaking down is the result.

Experts always pick the berries by the stems, breaking them off a fourth to one half inch above the fruit. If the berries are seized by the fingers they soon become mussy and worthless and not fit for the local market. The grower should supply his pickers with small carriers, which hold

from four to six boxes. The packing house or packing shed should be located in close proximity to the berry patch.

Method of Packing.—Berries that bring the highest prices in the market are those which are packed neatly and carefully. The successful grower never allows overripe, ill-shaped or small berries to find their way into the box. In order to establish a reputation it behooves him to put up a first class pack. He should never allow a crate of berries to leave his packing house without first stamping on it his name and address. The packing of strawberries is not a complicated affair. The berries are brought to the packing shed where they are emptied on small trays 3x3 or 3x4 feet in size, and all imperfect and defective specimens removed. They are now sorted into their respective sizes and placed in boxes, the top layer being arranged evenly and attractively. These layers may be arranged in tiers 4x4, 4x5 or 5x5, according to the size. Berries under five tier should never be packed. When the solid pack is used the berries should come even with the top, for if too high they will be crushed by the cover and if too low will jostle about causing more or less bruising. One packer can put up from 12 to 20 crates of 24 quarts each per day and can keep three pickers busy. For directions on packing see suggestions on page 28.

Crates Used.—At the present time one finds many styles of boxes and crates on the market. These vary in size and shape. The Boise market prefers the single deck, 15 tin tip cups to the crate, while the 24 quart and 24 pint crate finds considerable favor in the Lewiston market. There is, however, a splendid opportunity for the strawberry grower to build up an extra fancy trade by marketing his fruit in special constructed containers. These may be after his own origination or he may find something suitabel which is handled by some strawberry firm.

It should be remembered that all markets prefer clean, neat boxes and crates, hence the necessity for cleanliness in the berry patch and packing house.

Marketing the Fruit.—The marketing of the fruit in many cases is more of a business proposition than the grow-

ing. If the grower has access to a local association no difficulty will be experienced, but if not, arrangements should be made for their disposal before the harvest begins. As a general rule, in many sections of the state, the fruit is sold in the local markets. In transferring the fruit from the berry patch to the city, the grower should take every precaution to insure his berries against the heat and the dust. Good spring wagons covered with a tarpaulin may be used to good advantage. When the output is less than a car load, and the grower wishes to ship a short distance, the pony express may be used successfully. The contrivance is partitioned off so that the ice can be placed at the top and the berries at the bottom. Berries placed in portable refrigerators arrive on the market in first class condition. They may also be shipped short distances by fast express. When strawberries are shipped in car lots the grower should understand the methods of loading the car to insure his fruit arriving in prime condition in the market. Enough space should be left between each tier to insure perfect circulation of air. About five rows are made across the end of the car. Small laths are placed between the crates and nailed firmly so as to prevent them from jostling around. The center of the car is never filled, as this space is utilized by braces which hold the crates firmly in place and prevent them from moving lengthwise. Only refrigerator cars that have been previously cooled should be used in shipping berries. When these precautions have been observed good berries will carry six to seven days in prime condition. An ordinary car will hold from six hundred to seven hundred crates.

Yields.—Many elements, such as the care of plantation, location, varieties grown, prices received, etc., determine largely the profits derived per acre. An average crop in Hood River, Oregon, is estimated at 150 crates per acre. The yield per acre in our state varies from one hundred to three hundred crates. The prices also fluctuate more or less according to the scarcity of the fruit. Mr. Garner states that his berries netted him five hundred dollars per acre

last year and if he selected two or three of the best varieties he could net eight hundred dollars.

Treatment of Plants after Fruiting.—After the berries have been harvested the plantation should receive special attention. The old leaves should be removed, the ground stirred, and the weeds destroyed. There is no better way of doing this than by following the advice of Mr. D. M. Ragon of Meridian, one of the most progressive growers in the Boise Valley. He says in part: "After the berries are harvested mow the vines close to the ground. On drying rake the tops to the middle of the row and burn, then irrigate. When dry enough, cultivate thoroughly between the rows and with the hoe draw the dirt evenly over the crowns, being sure that it is well pulverized to the depth of one half inch. Continue to irrigate the ground well, the rest of the season, cultivating enough to down the weeds." The practice of covering the crowns assists the old plant in growing a new root system. Some growers have, by care and attention, secured two crops of berries during the season.

Duration of Plantation.

Just how often the strawberry plantation should be renewed seems to be a disputed question in many sections. Lack of sufficient knowledge on this subject has caused many growers to give up in despair and pronounce strawberry growing an unprofitable industry. Mr. A. K. Bowden of Sandpoint, comments as follows on the subject: "The people have not yet learned that the strawberry must be renewed and cannot go on bearing forever like the apple or other fruits, and for this reason many have become discouraged the third or fourth year, plowed them under and given them up." It is the practice in some sections for the growers to renew their beds every year, when the plants have been set in the fall. They claim where insect pests and fungus diseases are prevalent it is cheaper to plant new beds than to put the old plantation in shape again. The plants produce the largest berries the first year. Most all

growers agree that two years is as long as a plantation may be run with profit. After the second year the fruitfulness and vigor of the plants greatly diminish. The practice of allowing the beds to produce crops the third and fourth year is followed by some, but the results obtained are as a general rule far from satisfactory. Commercial growers are agreed that larger yields and larger berries are obtained from younger plantations, thus the practice of renewing their beds every two years. To meet with success in the strawberry business the growers should plan to have a new bed coming on every year.

Keeping up the Strain.—How can I improve my strawberries is a live question with all progressive growers? One means of accomplishing this is by observing the following points: The new beds should be set with the best plants obtainable. Vigorous, healthy, productive plants only, should be used for this purpose. The grower should study his individual plants, as they are very peculiar in their habits, some possessing the power of growing an abundance of fruit, while others grow leaves. Those capable of producing a large number of berries should be marked in some way, and runner plants selected from them. From good strong one year old plants the best selections can be made. The following illustration shows a desirable plant for propagating purposes. (See Plate 9) Continued selection for a number of years will enable the grower to improve his strain materially.

PLATE 9—A PLANT THAT PRODUCED OVER 200 BERRIES.

A good characteristic to preserve and transmit to the new strawberry bed.

Pedigree of Plants.—In case the grower has not the time or inclination to select his owns plants, they may be secured through several reliable firms. The R.M.Kellogg Company of Three Rivers, Michigan, is making a practice of sending out nothing but pedigree plants. Much has been said lately regarding the merit of these so called plants. Their method of obtaining them is a matter of selection. Undesirable characters are eliminated as fast as time will permit. Thus by their process of long continued selection, they have made rapid strides along the lines of improvement. There is no reason why commercial growers could not accomplish the same thing by a little forethought and perseverance.

Suggestions on Handling Strawberries.

A card containing rules for picking, packing and hauling of strawberries has been issued recently by the Hood River Fruit Growers Union in Oregon. It contains information that will be of value to all strawberry growers in this state. The directions follow:

Picking.

1. Berries must not be picked while there is moisture on the vines.

2. Berries must be pink all over or three fourths red.

3. Berries should be picked riper in cool weather than in warm.

4. Pickers must not be allowed to hold several berries in their hands at the same time.

5. Filled carriers must not be allowed to stand in the sun.

6. Berries must be picked with stem a quarter of an inch long; not longer or shorter.

Packing.

1. No culls in the boxes. Put nothing but fair sized berries, none under five tier.

2. After filling box about half full place the rest stems down, so as to be able to place the top layer all nice and level, stems down.

3. Fill boxes solid, leaving no vacant spaces, especially at corners, or they will be short weight, settle, spoil your pack and bring less money.

4. Fill box so that top of layer will come three eights of an inch above the top of the box.

5. Allow no berries to project over side of box, if you do the berries will be crushed, the pack spoiled, and the box stained.

6. Packers must be required to sort out all green over-ripe, mis-shapen and under five tier berries.

7. Use clean crates and keep them from being soiled.

8. After crates are nailed place them in a cool place of the packing house.

Hauling.

1. Haul in spring wagon and use wagon cover to keep out dust.

2. Growers are requested to send in a load as soon as ready.

3. Do not wait until you are through with your pack for the day. If everybody waits until six P. M., as they have in the past, the shipping association will not be able to load the day's pack, as the car must be braced and ready at ten P. M. Our crop will reach about 200 cars and we will send out from five to fifteen cars per day. These cannot be loaded after six P. M., or in three hours, so if you want your berries to go out the same day do not delay in getting them to the depot.

Remarks.

Our crop is large. Other localities have large crops also. Therefore it will be necessary to observe these suggestions if you expect to get ordinary results. People will not buy ordinary fruit, or a poor pack, and pay a price. Good fruit and a good pack will sell, even if there is plenty of the ordinary. All berries will be rigidly graded and inspected, but everyone will be treated fairly and justly without favor or discrimination. Our inspector will not find fault , but will endeavor to assist you with good advice.

Description of Varieties.

The following varieties have been grown on the testing plats during the past three years. In the notes upon the varieties points that are of value or of interest to the grower have been discussed. Detailed descriptions of plant and fruit accompany each variety. Typical specimens of the several varieties were selected and photographed, and all uniformily reduced.

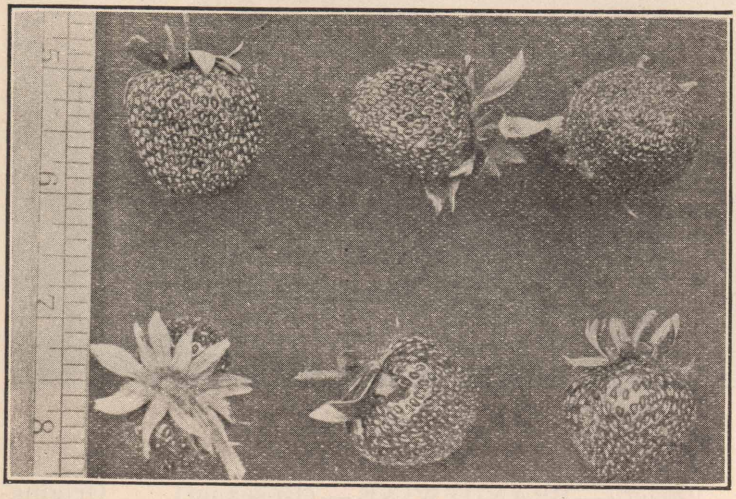


PLATE 10.

Variety.—AROMA. (Bi-sexual.) Originated by E. W. Cruse of Kansas. This variety is low and spreading, medium in size, a very vigorous grower and can resist disease fairly well. The leaves are dark green, medium in size, few to the plant and smooth. Petioles medium to long and stout.

Fruit.—A medium to large berry, roundish, conic, apex blunt to fairly acute. Peduncle short. The color of the berry is scarlet, blending to a pinkish white throughout the flesh. Moderately firm and hard at the core. A variety that does not possess a high flavor with fair quality. Season, early to medium. First ripe berry, June 11.

Remarks.—A very productive variety, but not as promising as some of the others tested.

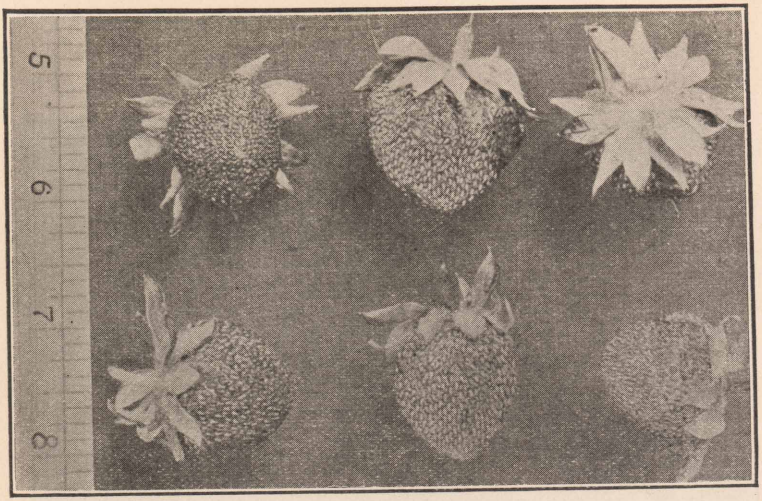


PLATE 11

Variety.—BRANDYWINE.—(Bi-sexual) Originated by E. T. Ingram, of Pennsylvania.

Plants.—Plants of low growing habit, vigorous, thrifty and forming a medium number of runners. They are of medium size and comparatively free from disease. Foliage of a dark green color, medium size, with many leaves to the plant. Leaves rather thick, leathery, hairy, and of a fairly fine texture. The petioles are short and stout.

Fruit.—Berries of medium size, conical and wedge shape, irregular apex, deep crimson, with yellowish crimson seeds that are somewhat conspicuous. The fruit is firm, but rather soft at the core. Flesh varies from pink to scarlet, subacid, fair to good in quality. Fruit stems medium in length, calyx large. Season, early to medium. First fruit ripe June 11.

Remarks.—The Brandywine is very productive and is a profitable variety to grow commercially. Good for canning purposes. A variety that continues in bearing for some time.

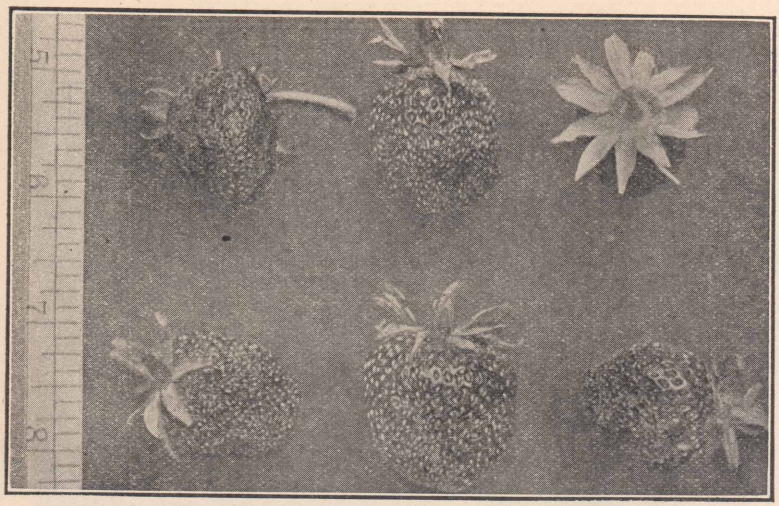


PLATE 12

Variety.—BUBACK.—(Pistillate) Originated by J. G. Buback of Illinois.

Plants.—The plants are vigorous, small to medium, decumbant and fairly free from disease. They produce a medium number of runners. Foliage light to dark green, with spreading habit. Leaf stock medium in length. The leaves are few in number, rather course, and somewhat hairy.

Fruit.—Berries irregular, varying from conical to wedge shape, apex fairly blunt. The fruit is medium to large, deep red in color, with conspicuous greenish seeds. Flesh, red to scarlet, juicy, subacid, moderately firm and of good quality. Fruit stem of medium length, calyx large. Season, late. First fruit ripe June 16.

Remarks.—This is very promising in some sections of the state as a commercial variety as it is a fruit of fine size and flavor.

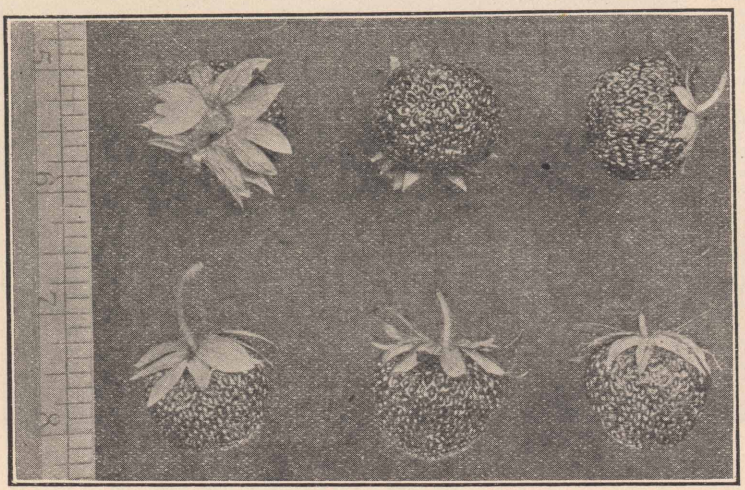


PLATE 13

Variety.—CLARK'S SEEDLING.—(Bi-sexual) The plants are small to medium, vigorous, healthy, very compact and slightly subject to disease. The foliage is dark green, medium large, rather coarse to smooth. Leaf stems rather long, inclined to slender. Calyx large.

Fruit.—Fruit medium, roundish to slightly conical, blunt, very attractive. Color crimson. Flesh red to the core, very firm, well flavored and of good quality. Fruit stems long and slendor. Season, early to medium. First ripe fruit June 11.

Remarks.—A variety that is a good shipper, excellent for canning and very productive. Can be grown successfully in some sections of the state.

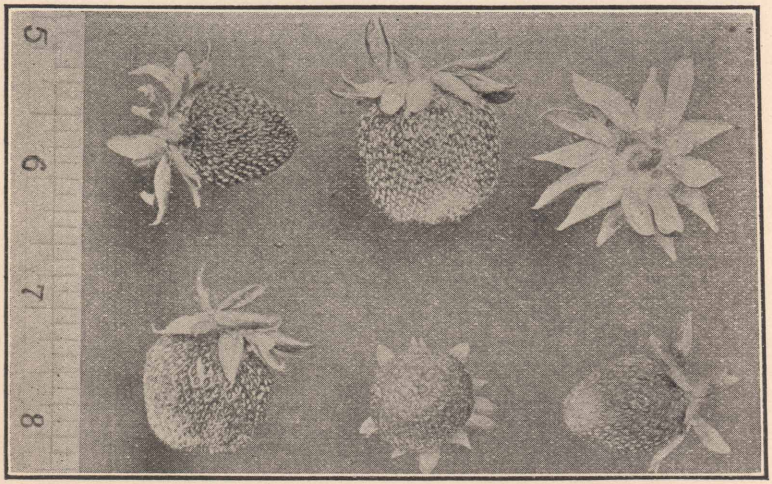


PLATE 14

Variety.—GANDY.—(Bi-sexual).

Plants.—A variety that produces medium plants of a dense, upright growth. Rather vigorous and thrifty, but somewhat subject to disease. The leaves are small, of medium texture, slightly hairy, with many to the plant. Foliage of a light green color, with a leaf of a medium thickness. Leaf stalks stout, medium to long.

Fruit.—The berries are quite regular, but slightly on the rough order, owing to the shallow imbedding of the seed. They are medium to large, roundish to conical, red, firm, but rather hollow at the core. Flesh, scarlet to pink, briskly subacid, juicy and of fair quality. Peduncle long holding the berries up well. Calyx very large. Season late. First ripe fruit June 16.

Remarks.—This variety is valued very highly in different sections of the state, on account of its late ripening. It is very productive.

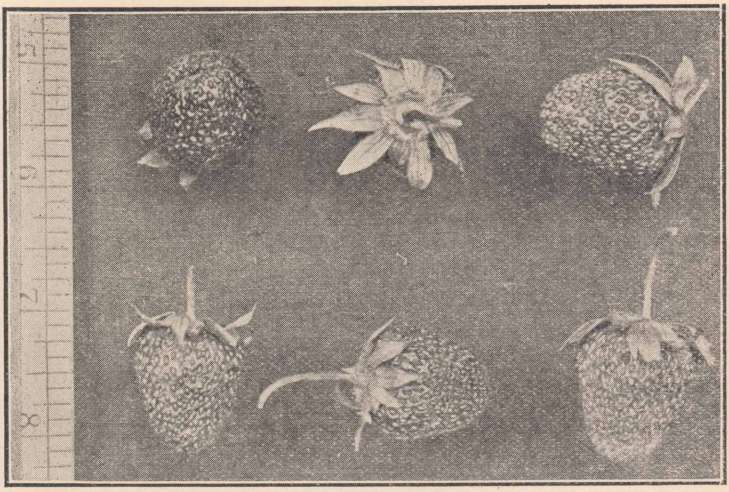


PLATE 15

Varity.—HAVERLAND.—(Pistillate) Originated by H. Haverland of Ohio.

Plants.—The plants are of large size, spreading, thrifty, vigorous, and fairly resistant to disease. They have a foliage of dark green leaves, medium to large in size, of fine texture, quite thin and comparatively smooth. Few leaves to the plant. The leaf stalks are rather long and slender.

Fruit.—Fruit quite regular, conical, medium in size, with greenish crimson unconspicuous seeds. The berries are of a bright crimson color, with the flesh varying from light scarlet to salmon pink. They are quite firm, but rather soft at the core, very highly flavored, juicy, subacid, and of fair quality. The fruit stems are long and slender. Calyx large. Season, late. First ripe fruit June 13.

Remarks.—A variety that produces fairly well, but of short season.

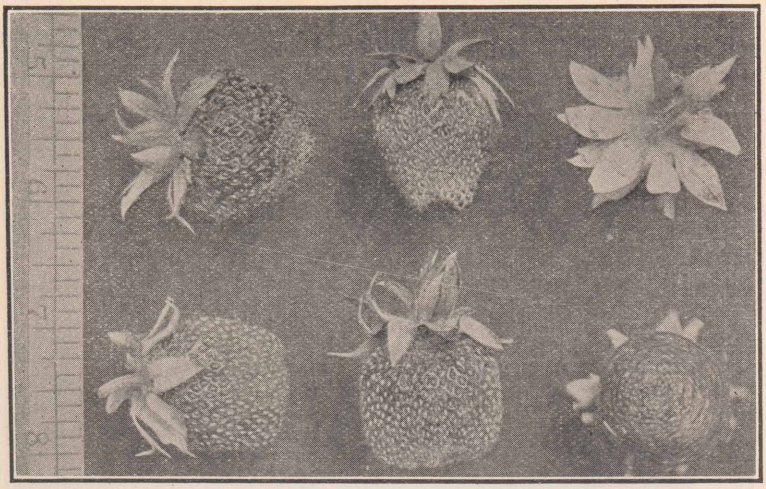


PLATE 16

Variety.—MARK HANNA.—(Pistillate) Originated by M. T. Thompson of Virginia.

Plants.—The plants are rather small, quite numerous, vigorous and inclined to be spreading. Disease resistance good. The leaves are small, medium to many per plant and slightly hairy. Light green in color. Petioles inclined to be stout and medium in length.

Fruit.—The fruit is medium to large, having very conspicuous yellowish green seeds. Berries quite irregular, varying from conical to wedge and blunt at the apex. A light red fruit, with scarlet flesh, quite firm throughout. Fruit stems medium to long, stout. A very juicy, acid berry, but not of the highest quality. Season late. First ripe fruit June 16.

Remarks.—This is a very late variety and very productive.

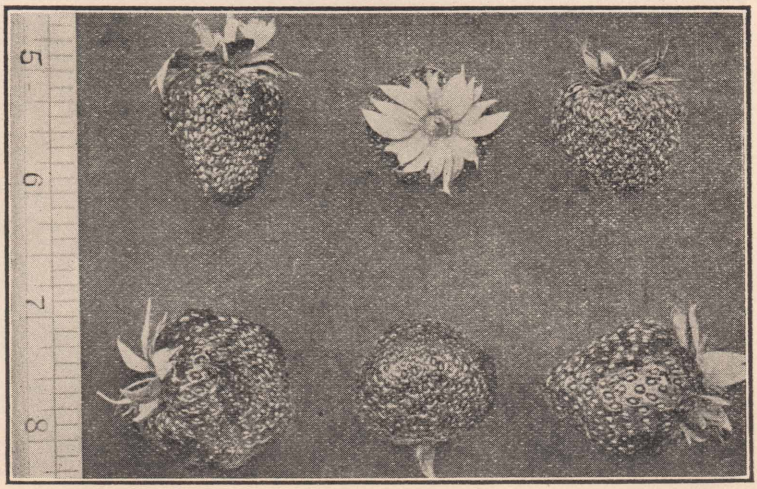


PLATE 17

Variety.—MARSHALL.—(Bi-sexual) Originated by M. F. Ewell of Massachusetts.

Plants.—A variety that is medium to large, having an upright and spreading growth, vigorous, thrifty and comparatively free from disease. The foliage varies from light to dark green with many leaves to the plant, medium in size, hairy, coarse in texture and of medium thickness. Leaf stems thick and long.

Fruit.—Berries medium to large, conical to roundish, dark red, with conspicuous yellow seeds. Flesh well covered throughout with scarlet, of medium firmness to the core, sweet, juicy, highly flavored and of good quality. Peduncle stout, and of medium length. Season late. First ripe fruit June 16.

Remarks.—A commercial variety that required much care. Fairly productive.

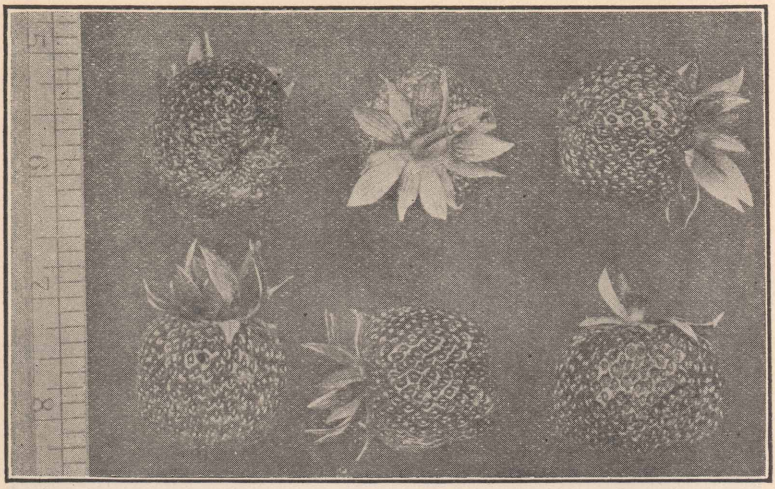


PLATE 18

Variety.—MIDNIGHT.—(Bi-sexual.)

Plants.—A very vigorous, growing plant, small to medium, low and spreading. The plants are quite thrifty, and fairly free from disease. They have a dark green handsome foliage, above medium in size, inclined to be hairy, and many to the plant. Petioles long.

Fruit.—The berries are not very uniform, some are roundish, broad, and blunt at the base, while others are inclined to be broad at the stem and wedge shaped at the apex. A large scarlet berry with light green seeds. Flesh whitish pink, rather soft and hollow at the core. A fruit not highly flavored and of poor quality. Fruit stems medium long. Calyx medium large. Season, early to medium. First ripe fruit June 11.

Remarks.—Very productive, but not a variety that could be recommended for commercial planting.

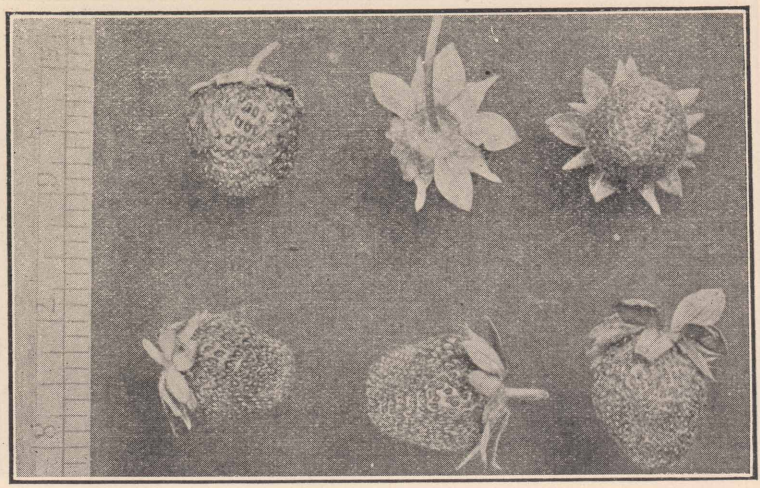


PLATE 19

Variety.—MILLER.—(Bi-sexual) Originated by J. D. Miller of Ohio.

Plants.—This is not as vigorous a grower as some of the other varieties tested. The plants are medium in size, spreading and fairly free from disease. The foliage is light green in color, coarse and hairy. Petioles of medium length and stout.

Fruit.—The fruit is small to medium, conical with apex fairly acute. Color scarlet, flesh pink to white, not very firm, core soft. A variety that is slightly acid and of fairly good quality. Fruit stems of medium length and slender. Calyx medium. Season, early to medium. First ripe fruit June 11.

Remarks.—A variety that does not stand shipment very well. More desirable for home use.

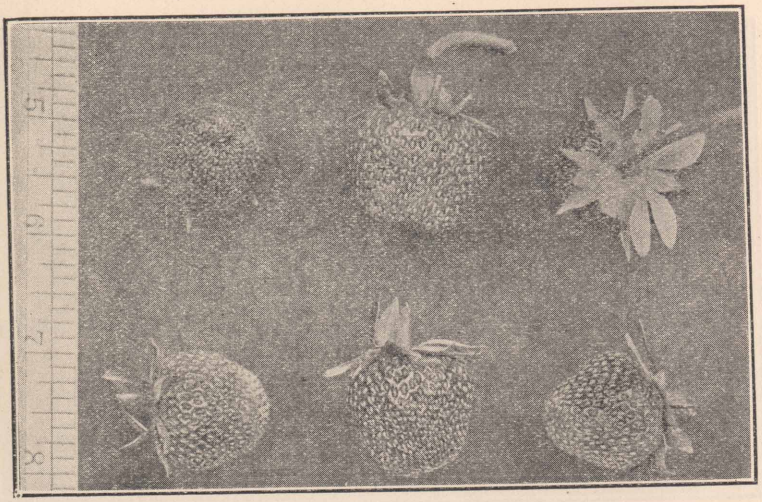


PLATE 20

Variety.—OREGON IRON CLAD.—(Bi-sexual).

Plants.—Small to medium, fairly thrifty, somewhat spreading in growth, but not forming a dense mat. Fairly disease resistant. Foliage of light green. The leaves are of medium size, rather coarse in texture, comparatively smooth and thick. The plants produce numerous leaves. Petioles of medium length.

Fruit.—The berries are of medium size, conical, plump and short. Apex blunt. Berries deep crimson to the center, firm and hard. Flavor mild and of very good quality. Seeds greenish yellow and quite conspicuous. Peduncle long and rather stout. Calyx large. Season late. First ripe fruit June 14.

Remarks.—The plants were not very productive at this Station. The berries possess the requisits of a good shipping variety.

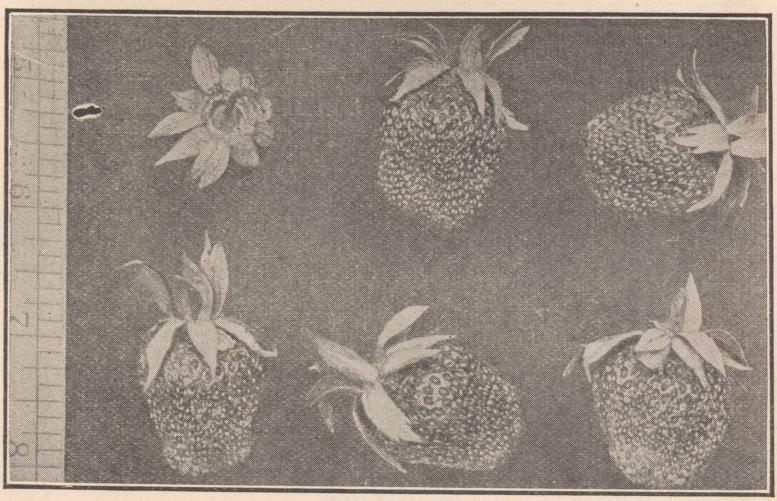


PLATE 21

Variety.—PARKER EARLE.—(Bi-sexual) Originated by J. Nimon.

Plants.—Plants medium in size, upright growers and comparatively free from disease. Leaves small, many to the plant, slightly hairy and light green in color. Petioles rather long and erect.

Fruit.—The berries are medium size, conical, with base protruding, apex truncate and quite uniform. Fruit colored uniformly scarlet with pink flesh. Very firm, subacid, pleasing to the taste, quality good. Fruit stem short. Season early to medium. First ripe fruit June 11.

Remarks.—A good commercial variety for some sections of the state. The plants are very productive, but require high culture.

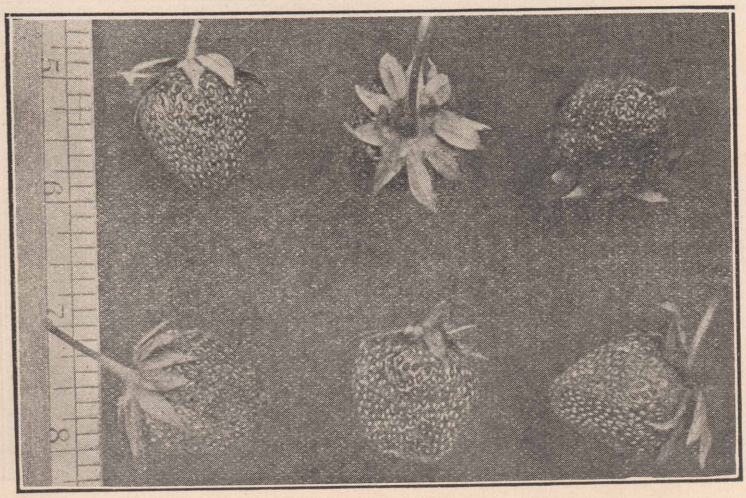


PLATE 22

Variety.—PARSON'S BEAUTY.—(Bi-sexual).

Plants.—An upright growing plant, vigorous, large, but not entirely free from disease. The plants send out many long runners. Foliage dense. The leaves are fine in texture, smooth, many to a plant, large, quite thin and dark green in color. Petioles rather long and slender.

Fruit.—Berries above medium to large, light crimson, with prominent greenish seeds extending out conspicuously. The shape is conical and wedge, often flattened, to fairly acute at the apex. The flesh varies from scarlet to salmon pink, firm, but rather soft at the center, juicy, slightly acid, quality fair to good. Calyx bushy and large. Fruit stems long and slender. Season, early to medium. First ripe fruit June 11.

Remarks.—A variety that is very productive and is grown commercially in certain sections of the state.

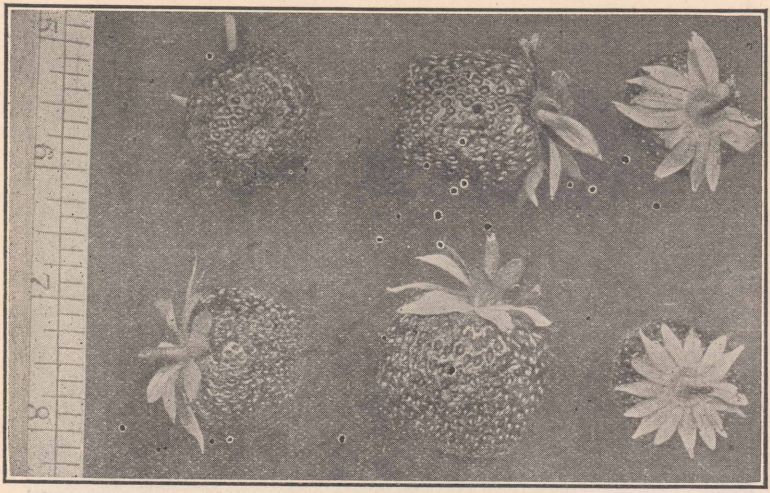


PLATE 23

Variety.—PRESIDENT.—(Pistillate) Originated by M. R. Hust of New Jersey.

Plants.—Plants small to medium, not very vigorous, but fairly free from disease. They made a dense upright growth. The leaves are small, many to the plant, light green and hairy. Petioles quite long and thick.

Fruit.—The berries are above medium to large, roundish conical, blunt, and deep crimson in color. The flesh shades from a light scarlet to salmon pink, and is firm, but somewhat soft around the core. Peduncle medium in length. Flavor mildly subacid and fairly good in quality. Season, late. First ripe fruit June 14.

Remarks.—A late bloomer, but not of the highest quality This variety is very attractive in color and very firm, which makes it a promising variety to grow for the general market. As grown upon the station grounds the plants failed to produce many berries.

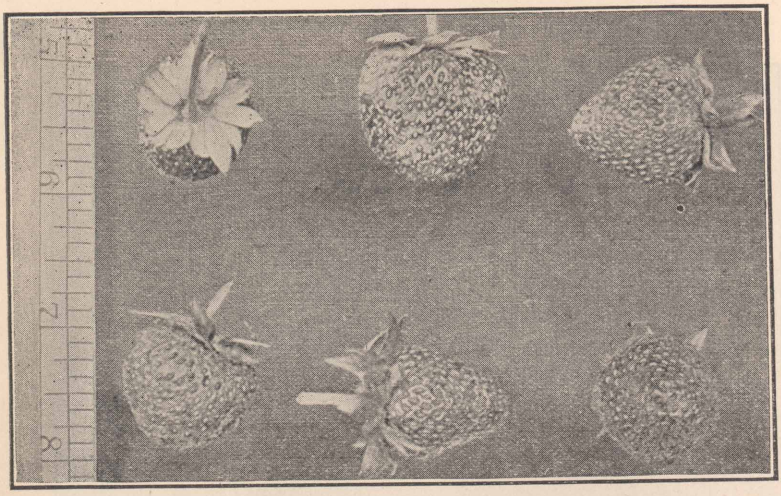


PLATE 24

Variety.—ROUGH RIDER.—(Bi-sexual) Originated by Charles Learned of New York.

Plants.—An upright growing plant, small to medium, thrifty, and fairly free from disease. Plants produce but very few runners. Leaves many, medium in size, dark green with spreading habit. Inclined to be hairy. Leaf stem slender and medium in length.

Fruit.—Fruit medium, light crimson, elongated, conical, inclined to wedge. The flesh is uniformly scarlet throughout, firm texture and hard at the core. A variety that is juicy, rich, sweet and pleasant, and of good quality. Peduncle medium slender to stout. Calyx medium to large. Season, early to medium. First ripe fruit June 11.

Remarks.—One of the best varieties grown on the station grounds. Very productive. Desirable for home or for market.

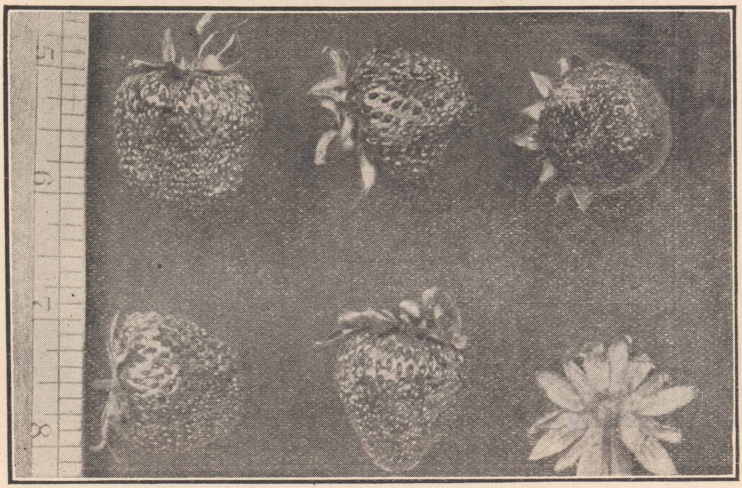


PLATE 25

Variety.—SAMPLE.—(Pistillate) Originated by J. D. Gowing of Massachusetts.

Plants.—The plants are strong upright growers, small to medium in size and able to resist disease fairly well. The foliage is light green, of medium texture, with only few leaves to the plant. The leaves are rather thick and hairy. Petioles small and of medium length.

Fruit.—Berries medium to large throughout the season, conical, and quite regular. A crimson fruit with yellowish red seeds. The flesh varies from scarlet to pink, is of medium firmness and fairly hard around the core. Calyx medium, peduncle of medium length. The quality is fair, juicy and acid. Season, late. First ripe fruit June 13.

Remarks.—A variety that may become promising for commercial plantations. Fairly productive.

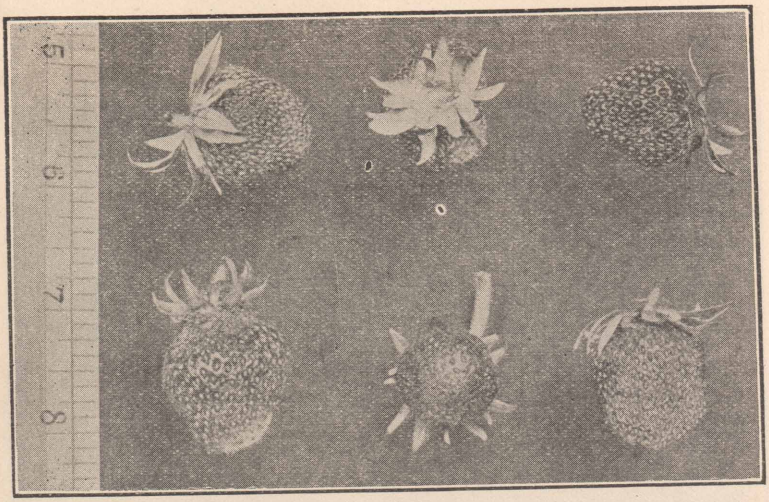


PLATE 26.

Variety.—SENATOR DUNLAP.—(Bi-sexual) Originated by J. R. Reasoner of Illinois.

Plants.—The plants are good strong upright growers, medium in size and quite disease resistant. Inclined to produce a large number of runners. The leaves are narrow and long, fairly numerous to the plant, of fine texture and somewhat hairy. Foliage dark green in color. Leaf stalks long and slender.

Fruit.—Fruit medium, pointed, conical and uniform in shape. The berries are firm, but somewhat soft at the center, having a dark rich crimson color, with a scarlet flesh. Seeds of a yellowish crimson color and not especially prominent. Peduncle short, thick, with medium sized calyx. Season, early to medium. First ripe fruit June 11.

Remarks.—Senator Dunlap gave excellent results on of the Station grounds. A leading variety for home and market.

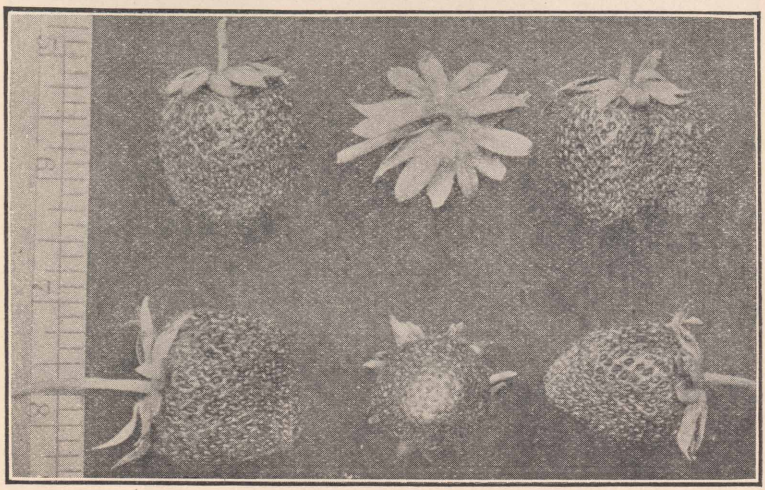


PLATE 27

Variety.—Wm. BELT.—(Bi-sexual) Originated by William Belt of Ohio.

Plants.—The plants are low and spreading, large, vigorous, but inclined to be susceptable to disease. Leaf stalk long and slender. The leaves are large, light green, smooth and of fine texture. Foliage of medium thickness.

Fruit.—Berries large, fairly uniform, conical, inclined to coxcomb, apex acute to blunt. Calyx large, peduncle above medium length and slender. The berries are uniformly covered with scarlet, attractive, flesh scarlet to pink to the center. Moderately firm, mild, sweet, rich, pleasant flavor and of excellent quality. Season, early to medium.

Remarks.—These plants produce large berries of excellent flavor. A desirable variety for commercial planting.

In order to assist the grower in distinguishing between early and late varieties the writer has placed them according to their fruiting season into the following groups:

Early to Medium Varieties.

Senator Dunlap	Midnight
Parson's Beauty	Rough Rider
Wm Belt	Parker Earle
Miller	Brandywine
Clark's Seedling	Aroma

Late Varieties.

Sample	President
Marshall	Mark Hanna
Oregon Iron Clad	Haverland
Gandy	Buback

Acknowledgments.—I wish at this time to express my grateful acknowledgments to those who have rendered valuable assistance in securing data on the strawberry.

Professor Wicks, for suggestions and photographing Plates I, II to 27 inclusive.

Mr. D. M. Ragon, for the photograph of his strawberry plantation.

Commercial Club of Sandpoint, Idaho, for loan of Plate No. 9.

To the strawberry growers of the state, for information regarding cultural methods in the several sections.

PLATE 28.— D. M. RAGON'S STRAWBERRY PLANTATION, MERIDIAN, IDAHO.
A Strawberry bed like this is a great factor in relieving the congested condition of the cities.

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