New York Agricultural Experiment Station.

BULLETIN No. 95—NEW SERIES.

NOVEMBER, 1895.

CURRANTS.

BY S. A. BEACH.

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*Connected with Long Island Branch Station.
†Connected with Fertilizer Control.
BULLETIN NO. 95—NEW SERIES.

CURRANTS.

SUMMARY.

The work of comparing varieties of currants as to their value either for home use or for commercial purposes was begun at this Station in 1882, when five red, one white and five black kinds were planted for this purpose. In 1895 there were grown at this Station exclusive of Station seedlings, thirty-seven cultivated varieties and three wild kinds. Several additions have been made to this list during the autumn.

Descriptions are given of the varieties in the following list:


Red and White: Gloire des Sablons.

White: Caywood's Seedling, Champion, Marvin's Seedling, White Dutch, White Grape and White Versailles.

European Black: Baldwin, Black Grape, Champion, Common Black or English, Lee, Naples, Prince of Wales, Saunders and Saunders' No. 2.

Native Black or Yellow: Crandall and Jelly.
These descriptions are supplemented by a discussion of the comparative value of the different varieties in which is given a statement of the average yield in pounds per bush of the varieties that were in full bearing at the Station during the last three years. Prince Albert, a red currant, was the most productive of all the kinds thus far tested, having an average yield during the last three years of 8.86 pounds per bush. White Dutch was the most productive of the white, and Prince of Wales the most productive of the black kinds tested. Individual varieties in the different classes vary much in productiveness, but the most productive black currants do not equal in yield the most productive red or white kinds. It is estimated that on account of their being less productive one would need to realize from one and a half to two cents per pound more for the black as a class, than for the red or white currants.

Approved methods of propagating currants by cuttings, layers or seeds are described and instructions on planting, fertilizing, cultivating, pruning and spraying are given.
INTRODUCTION.

Several varieties of currants were planted for testing at this Station as early as 1882, the year that experiment work was inaugurated here. These varieties were all well known standard sorts and included five red, one white and five black kinds. Specimens of the wild currant of the western prairies, Ribes aureum, Pursh, sometimes called Missouri Large Fruited, and of the wild currant of our woods that bears dull black fruit and resinous dotted leaves, Ribes floridum, L’Her., were also planted. Additions have been made to this collection from time to time till the list of varieties now grown at the Station includes eighteen red, six white and ten black kinds, one kind with red and white striped fruit, three black fruited kind of the species Ribes aureum, Pursh; one of the wild black Ribes floridum, Pursh, and one of the Oregon species Ribes sanguineum, Pursh; besides these there are fifty-three Station seedlings, including twelve hybrids, nineteen pure Fay seedlings and twenty-two pure White Grape seedlings, making ninety-three kinds in all.

It is interesting to note that new varieties are constantly being added to the list of currants in cultivation. Previous to 1891 the list contained but two kinds that might be classed as new varieties, viz., Fay, and Caywood’s unnamed white seedling. Since 1891 fifteen additions have been made to the list besides the Station seedlings and all of these fifteen kinds are new, several of them not having been as yet named or introduced.

Currants are grown at this Station on a southern slope with soil consisting of a rather heavy clay loam and clay subsoil. It is well drained by lines of tile about two rods apart. The bushes are set four feet apart in the row and the rows are from six to seven feet apart. In the fall a forkful or two of stable manure is given to each bush, which in the spring is turned under quite shallow, or cultivated in as soon as the ground is fit to work. The ground is cultivated two or three inches deep near the plants
and somewhat deeper midway between the rows at the first cultivation, after which shallow cultivation is continued till August, keeping the surface well stirred and free from weeds. In the fall the bushes are pruned by removing the five-year-old canes, the broken branches or those that droop to the ground, and all but one or two of the new shoots of one season’s growth. The canes are not always removed after their fifth season’s growth, but should they still appear very vigorous and well filled with buds they are permitted to remain longer. No unvarying rule can be followed in pruning, yet it is thought that usually a cane reaches its greatest productiveness during its fourth and fifth seasons. With this treatment the currants have made satisfactory growth and have yielded abundantly each season.
RED CURRANT.

Ribes rubrum, L.

The commonly cultivated red currant is a native of northern Europe and northern Asia. A form of this species is also found in the northern part of the United States and in Canada but so far as I know this wild American form has no representatives among cultivated varieties. In Europe the cultivation of the currant dates back to the Middle Ages, and the cultivated red currants are varieties of European origin or seedlings of them which have been produced in this country.

DESCRIPTION OF VARIETIES.

NOTE.—Italics are used to designate synonyms and unnamed seedlings.

Cherry.—Bush vigorous, stocky and compact in nursery. The young plants are upright but with age they tend to become more spreading. It has a tendency to grow a single stalk and does not sucker as freely as do most other kinds. There is also a noticeable tendency to imperfect buds at or near the end of shoots, especially on bearing plants. Sometimes two or three joints near the end of the shoot have no buds. This is one feature that distinguishes the Cherry from the Versaillaise. It bears its fruit quite close to the wood on short stemmed clusters so that it usually costs more to pick this than it does other varieties. The clusters are rather short, about two inches long.

The fruit frequently varies from small to large in the same cluster but averages large. It is not so uniform in size as Fay. The color is a fine, bright red, much like that of Red Dutch. Berry thin-skinned, juicy and fine flavored. On account of its attractive color and large size it sells well for dessert use and it is also liked at canneries. It is generally conceded to be one of the most productive of the large currants. Season early.

1 Torrey and Gray, Fl. N. Amer. 1, 150.
2 De Candolle. Origin of Cultivated Plants, 277.
Eclipse.—From H. S. Anderson, Union Springs, N. Y., 1892. Bush a vigorous, upright grower. Bunches medium length, two and a half to three inches long. (See Plate I, figure 2.) Fruit varies from small to large. It has comparatively mild acid pulp for a red currant. Color good, somewhat lighter than Fay. It is not yet in full bearing here so that we are not prepared to say how productive it is.

Fay.—Bush vigorous but not quite as strong a grower as Cherry. Its canes are somewhat spreading and not always strong enough to remain upright when weighted with fruit. The clusters vary from two and a half to four inches long. The cluster stems are long, leaving enough room between the wood and the fruit to make it easy to gather. (See plate I, figure 4.) The berries vary from medium to very large, averaging large. They are quite uniform in size, of a good color, darker than Red Dutch. Pulp less acid than that of Cherry. It has not been so productive at this Station as have Cherry, Victoria, London Red or Prince Albert. Its average yield for the last three seasons has been four and seven-tenths pounds per bush.

This variety is said to be a seedling of Cherry or Victoria that originated in 1868 with Lincoln Fay, Portland, Chautauqua Co., N. Y. It was introduced about twelve years ago and is now quite generally known. Its clusters are long and attractive, filled with large fruit, making it desirable for market where there is a demand for currants for dessert use. It is liked at canning factories for making jelly or jam on account of its large size, thin skin and rich, juicy pulp, but it is more profitable to grow other more prolific sorts, such as Prince Albert, for this purpose.

Gloire de Sablons.—Bush upright, vigorous, but only moderately productive. Bunches short. Fruit small. Remarkable only for the color of the fruit which is white, striped or splashed with red.

London Red.—Short Bunched Red. Bush vigorous, upright and very productive. Clusters short with a very short stem. (See plate II, figure 6.) Fruit medium to large, nearly the same color as Red Dutch and similar to it in quality. During the last three years it has ranked second in average yield per bush among the varieties in full bearing at this Station.

Mills No. 20. From C. Mills, Fair Mount, N. Y., 1891. Bush
vigorously, somewhat spreading. Bunches medium length, two to three inches long. (See plate I, figure 3.) Fruit medium to large, more uniform in size than Cherry. Color fine, lighter than Cherry and darker than Prince Albert. Pulp not quite so acid as that of Red Dutch. It ranked second in productiveness this year but it has not been tested here long enough to justify a general report as to its productiveness. Mr. Mills reports that it is a seedling of Versailles crossed by Red Dutch.

*Mills No. 22. From Chas. Mills, Fair Mount, N. Y., 1893.* Mr. Mills reports that this is a seedling of Versailles crossed by Red Dutch. The bush is moderately vigorous, somewhat spreading. Clusters two and a half to three inches long. (See plate III, figure 9.) Fruit has a good color, lighter red than Fay. Berries are usually large, but vary from small to very large. Pulp less acid than that of Red Dutch. The variety has not been fruited here long enough to justify a report as to its productiveness, but it appears to be very productive.

*Mills No. 28. From Chas. Mills, Fair Mount, N. Y., 1893.* Mr. Mills reports that this is a seedling of Versailles crossed by Red Dutch. The bush is moderately vigorous, somewhat spreading. Clusters good size, three to three and a half inches long. Fruit medium size, dark red color, mild flavored. It has not been fruited here long enough to justify a report as to its productiveness.

*Mills No. 29. From Chas. Mills, Fair Mount, N. Y., 1893.* Mr. Mills reports that this is a seedling of Versailles crossed by Red Dutch. Bush a vigorous, upright grower. Clusters short. Fruit averages large but varies from small to large. Somewhat darker than Mills 22 but brighter and better in color than that variety. Good flavor, excellent quality. Has not fruited here long enough to justify a report as to its productiveness.

**North Star.—From Jewell Nursery Co., Lake City, Minn., and E. Moody & Sons, Lockport, N. Y., 1892.** Bush vigorous, upright or somewhat spreading. Bunches medium length, (see Plate II, figure 7), color good, much like that of London Red or Red Dutch. Fruit will probably average large with good cultivation but varies from small to large. Pulp comparatively mild acid. It has not been tested here long enough to justify a report as to its productiveness.
Prince Albert.—Bush vigorous, even more upright than Red Dutch. Of all the varieties that are in full bearing here this has given the largest average yield per bush during the last three years, though one year it took second rank, being exceeded in yield by London Red. Prince Albert has long been valued as a late variety. It is well liked at canneries because of its good size, thin skin and large percentage of highly flavored juice. Bunches short to medium in length. (See Plate III, figure 12.) Fruit medium to large, rather pale red, making it less attractive in color than Fay. The young plants make a rather slow, short growth but with age the bush becomes strong and upright. On account of the slow growth of the young plants some prefer to propagate them by mound layering.

Red Cross, Moore No. 23.—From Jacob Moore, Attica, N.Y., 1893. Mr. Moore states that this is a cross of Cherry by White Grape. Bush vigorous, upright. Bunch medium length. (See Plate II, figure 8.) Fruit medium to very large, averaging large. Color good, somewhat lighter than Cherry. More acid than White Grape but milder than Cherry. Season somewhat later than Cherry. Has not been fruit ed here long enough to justify a report as to its productiveness. Green's Nursery Co., Rochester, N. Y., now controls this variety.

Red Dutch.—This is one of the old well known standard sorts. Bush a strong grower, rather tall, upright, with comparatively slender shoots. Clusters about three inches long. Fruit has a fine, dark red color and sprightly acid flavor. Berries vary from small to large but average medium. Productive.

Ruby Castle.—From F. Ford & Son, Ravenna, O., 1892. This variety was obtained from Canada several years ago by Messrs. Ford & Son, under the name, Ruby Castle, which it now appears is a corruption of Raby Castle, which is one of the synonyms of Victoria. Ruby Castle is a strong, upright grower, like Victoria, with clusters two and a half to three inches long; similar to Victoria in size and color. (See Plate III, figure 10.) The buds are shaped like Victoria and have the same characteristic bluish gray color. I should call the two identical.

Storrs & Harrison Co. No. 1.—From Storrs & Harrison Co., Painesville, O., Nov. 1892. Bush moderately vigorous, upright. Bunches medium size, two to three inches long. Berries small to
medium or above, averaging below medium. Much like Red Dutch in color but with less acid pulp than that variety. The variety has not been tested here long enough to justify a report as to its productiveness.

**Versailles.**—A vigorous, somewhat spreading grower. It is so similar to Cherry in wood, habit of growth and character of fruit that many hold to the opinion that the two varieties are identical. As grown here, the Versailles is less productive than Cherry and is inclined to have a longer bunch (see Plate I, figure 1), and rather darker red fruit. The tendency of the shoots to “go blind,” that is, to lack either the terminal buds or buds near the terminal is not so marked with it as with Cherry.

**Victoria.**—This is one of the most valuable of medium sized currants. The bush is one of the strongest growers we have, upright and very productive. The buds have a peculiar bluish-gray color, quite characteristic of this variety, as is also the cluster of well formed buds at the end of the shoot. Foliage rather pale green. The fruit has a bright red color, and is medium or above in size. Clusters good medium length (see Plate II, figure 5); pulp rather mild acid. The fruit is late in coloring and will keep on the bushes in good condition later than either Cherry or Red Dutch.

**Wilder.**—From F. Ford & Sons, Ravenna, O., 1892. Bush vigorous, upright. Fruit medium to very large, averaging large. Not so uniform in size as Fay. (See Plate III, figure 2.) Fine color, somewhat lighter than Fay, and remains bright and attractive till very late in the season. Flavor mild for a red currant. Quality good. It has not been fruited here long enough to justify a report as to its productiveness.

This is a seedling of the Versailles. It originated about eighteen years ago with E. Y. Teas, Irvington, Ind., by whom it was named and disseminated to a limited extent as the Wilder. Mr. Teas' stock was then purchased by Mr. S. D. Willard, Geneva, N. Y., and the variety was then catalogued as President Wilder.

**Discussion of Varieties.**

The yields of the red currants at this Station that are in full bearing may be compared by consulting the following table,
which shows the average yield per plant in pounds for the last three seasons combined:

<table>
<thead>
<tr>
<th>Name</th>
<th>Average yield per plant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherry</td>
<td>5.15</td>
</tr>
<tr>
<td>Fay</td>
<td>4.70</td>
</tr>
<tr>
<td>Gloire des Sablons</td>
<td>2.07</td>
</tr>
<tr>
<td>London Red</td>
<td>7.14</td>
</tr>
<tr>
<td>Prince Albert</td>
<td>8.86</td>
</tr>
<tr>
<td>Victoria</td>
<td>6.25</td>
</tr>
</tbody>
</table>

It appears from this table that for this locality at least the Cherry is superior to Fay in productiveness and it still holds its place as one of the most desirable of the large fruited red currants for the commercial grower. Fay yields the longer bunches, more uniformly large fruit, and its fruit is more easily picked than Cherry, but it does not make as satisfactory a bush nor give as satisfactory a yield. Both these varieties need to be marketed comparatively early. They will not remain on the bushes in good condition for shipping as late as will Victoria, Prince Albert or Wilder. As to the comparative value of different varieties for jam and jelly Curtice Brothers Co., Rochester, N. Y., who operate a very extensive establishment for preserving and canning fruits, write us that Cherry currant is preferred for jam because it is thin-skinned and juicy; but not so for jelly making for the reason that it is necessary to evaporate away more of its juice to produce jelly than it is with some other varieties. The currant that is preferable, they say, is the largest one that has a thin skin and is filled with rich juice or pulp, and they believe this is true of Fay and Prince Albert above other varieties.

London Red, also called Short Bunched Red, is objectionable, on account of its short clusters and fruit close to the wood, but has the merit of being one of the most productive of the red kinds that have been tested here. It ripens about with Red Dutch. The Red Dutch was not included in the above list because the bushes under test were unsatisfactory. It is one of the best of the mid-season, medium-sized red currants.

Prince Albert and Victoria are both valued as productive late currants. The former when well grown will pass for a large currant. The fruit is paler and less attractive than Cherry. Victoria is a good late currant, but it ranks only medium in size.

Several of the apparently desirable newer varieties under test here have not been fruited sufficiently long to justify a report as to their yield.
WHITE CurrANT.

Ribes rubrum, L.

The commonly cultivated white currants belong to the same species as do the red varieties. They are grown chiefly for home use as the market demand for them is quite limited. The following is a list of the white currants in full bearing at this Station during the last three years together with a statement of the average number of pounds per bush yielded during that time. There
were five bushes each of Champion, White Grape and White Dutch and but one bush of Caywood’s Seedling:

<table>
<thead>
<tr>
<th>Name</th>
<th>Average yield per plant in pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caywood’s Seedling</td>
<td>4.65</td>
</tr>
<tr>
<td>Champion</td>
<td>5.00</td>
</tr>
<tr>
<td>White Dutch</td>
<td>6.19</td>
</tr>
<tr>
<td>White Grape</td>
<td>5.77</td>
</tr>
</tbody>
</table>

In 1893 the bushes of White Grape were not in as good condition as could be desired. The average yield per bush for these varieties in 1894 and 1895 combined is:

<table>
<thead>
<tr>
<th>Name</th>
<th>Yield per plant in pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caywood’s Seedling</td>
<td>4.88</td>
</tr>
<tr>
<td>Champion</td>
<td>3.99</td>
</tr>
<tr>
<td>White Dutch</td>
<td>5.59</td>
</tr>
<tr>
<td>White Grape</td>
<td>6.86</td>
</tr>
</tbody>
</table>

DESCRIPTION OF VARIETIES.

Caywood’s Seedling.—From A. J. Caywood & Son, Marlboro, N. Y., 1888. Bush a moderate grower with spreading or drooping branches; very productive. Fruit more acid than White Grape, good quality and attractive in appearance, being translucent, tinged with very pale greenish yellow. Bunches medium size, about two and a half inches long. Berries medium to large, averaging large. (See Plate IV, figure 14.)

Champion.—Bush very tall, vigorous, upright. Bunches medium length. Berries a shade lighter in color than White Dutch, not uniform in size, varying from small to large and averaging medium or below. Flavor mild. Inferior to White Dutch in productiveness, appearance, flavor and quality.

Marvin’s Seedling—From D. S. Marvin, Watertown, N. Y., 1892. Bush a moderately vigorous, upright grower. Bunches above medium length, running from two and a half to three inches long. It is one of the largest white currants, the berries averaging larger than White Grape. Pulp mild, but more acid than White Grape. Color much like that of White Grape. It has not fruited long enough here to justify a report as to its productiveness. This variety is now controlled by J. C. Vaughan, Chicago, Ill.

White Dutch.—This is an old, well known standard variety. Bush a vigorous, upright grower and very productive. Bunches usually from two to three inches long. (See Plate IV, figure 15.)
Fruit not uniform, varying from small to large but averaging medium size, translucent, slightly darker in color than White Grape. Pulp comparatively mild acid. Quality excellent. It begins to ripen a few days earlier than most of the red varieties.

**White Grape.**—Bush moderately vigorous, rather slender branches, somewhat spreading, productive. Bunches three to four inches long. (See Plate IV, figure 13.) Berries quite uniformly large, but vary from medium to very large. Translucent, whitish, attractive in color, mild flavored, good quality. It has larger and better colored fruit than White Dutch but is inferior to that variety in quality.

**White Versaillaise.**—Received in November, 1893, from John Charlton, Rochester, N. Y., with the statement that it was received from France a few years ago. He characterized it as a stout, vigorous grower, more so than White Grape and other white kinds; bunches long, resembling Versaillaise in shape, character of bunch, etc.

So far as tested here it is, as Mr. Charlton says, vigorous in growth and upright. The base of the cluster stem has no fruit so that it is easily picked. Bunches three and a half to four inches long. The berries average large, a shade darker than White Grape in color. Pulp not quite so juicy but about the same in acidity as White Grape. It has not been fruited here long enough to justify a report as to its productiveness.

**EUROPEAN BLACK CURRANT.**

*Ribes nigrum,* L.

The black currant commonly cultivated in gardens for its fruit is indigenous to northern Europe and northern Asia. De Candolle\(^3\) thinks its cultivation began before the Middle Ages. In botanical characters it is somewhat similar to the wild black currant of our woods, *Ribes floridum,* L’Her., but readily distinguished from it by the strong odor of its branches, leaves and fruit, and by its greener flowers, smaller flower clusters and very small bracts. So far as I know the wild black currant just referred to is not cultivated for its fruit. It is quite distinct from the wild black currant of the prairies, the so-called Missouri or Buffalo currant, which will be referred to later.

\(^3\) Origin of Cultivated Plants, 278.
DESCRIPTION OF VARIETIES.

A description of the varieties of the garden black currant that are growing at this Station is herewith given.

**Baldwin.**—Bush moderately vigorous and productive. Fruit varies from small to large, averaging medium size. (See Plate V, figure 15.) Flavor milder than that of Common Black. It is several days later than Common Black in ripening.

**Black Grape.**—*Ogden's Black Grape.* A vigorous grower, but one of the most unproductive kinds we have tested. Fruit varies from small to very large in size, with strong flavored acid pulp. (See Plate V, figure 18.)

**Champion.**—Bush vigorous, productive. Fruit varies from small to large and averages above medium. (See Plate V, figure 19.) Pulp nearly sweet and milder flavored than that of Common Black. A desirable variety.

**Common Black.**—*Black English.* Bush very vigorous and productive. Fruit varies from small to large but averages medium. (See Plate V, figure 20.) Pulp rather acid and strong flavored.

*English,* see Common Black.

**Lee.**—*Lee's Prolific.* Bush dwarfish, moderately vigorous, productive, Fruit rather brighter in color than most kinds of black currants, varying from small to largest in size. (See Plate V, figure 17.) Pulp acid and strong flavored.

**Naples.**—Bush very vigorous, moderately productive. Fruit varies from small to large and averages above medium size. (See Plate V, figure 16.) Pulp rather acid with strong flavor.

**Prince of Wales.**—Bush vigorous and very productive. This variety has given the highest average yield per bush for the last three years of all the black currants in full bearing at this Station. The fruit varies from small to large, is milder flavored.
than Common Black, and nearly sweet when fully ripe. Figure 21 shows a good cluster of Prince of Wales, life size.

**Saunders.**—This was received here from Smith and Kernan, St. Catharines, Ontario, 1890, under the name of Saunders No. 1. Mr. Smith writes that it was named as a compliment to Prof. Wm. Saunders, its originator, now Director of the Central Experiment Farm at Ottawa, and has been sent out by the Ontario Fruit Grower’s Association under the name of Saunders. He also says that it is pretty well disseminated in Canada and he thinks that it ranks as high as any of the black currants for a market variety.

As grown here the bush is vigorous and productive. The fruit varies from small to large, averaging medium or above. Pulp rather mild acid. In 1893 when the bushes had been set three years, it ranked fifth in yield as compared with varieties that had been set five years; in 1894, it ranked third and in 1895, second.

**Saunders No. 2.**—From Smith and Kernan, St. Catharine, Ontario, 1890. This, like the Saunders, was originated by Prof. Wm. Saunders. Since 1893 it has ranked seventh in yield each year and it does not appear to have sufficient merit to make it worth cultivating. Bush vigorous. Fruit varies from small to large, averaging medium. It is milder in flavor than Common Black and nearly sweet.

From the following table a comparison may be made of the fruitfulness of these varieties as grown here. It contains a statement of their average yield in pounds per bush during the last three years.

<table>
<thead>
<tr>
<th>Name</th>
<th>Average yield per plant in pounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baldwin</td>
<td>3.87</td>
</tr>
<tr>
<td>Black Grape</td>
<td></td>
</tr>
<tr>
<td>Champion</td>
<td>*</td>
</tr>
<tr>
<td>Common Black</td>
<td>4.58</td>
</tr>
<tr>
<td>Lee</td>
<td>4.39</td>
</tr>
<tr>
<td>Naples</td>
<td>3.37</td>
</tr>
<tr>
<td>Prince of Wales</td>
<td>5.45†</td>
</tr>
<tr>
<td>Saunders</td>
<td></td>
</tr>
<tr>
<td>Saunders No. 2</td>
<td>4.13†</td>
</tr>
</tbody>
</table>

*The record of the yield in 1894 is incomplete for Black Grape and Champion. The average yield per plant for 1893 and 1895 combined is 2.15 pounds for Black Grape and for Champion is 4.28 pounds.
† These plants were set out in 1890 while the other varieties were set in 1888.

It will be noticed that as a rule the average yield of black currants per bush is less than the average yield per bush of standard
varieties of red or white currants. The highest average yield per bush for the last three years is 8.86 pounds for the reds, 6.19 pounds for the whites, and but 5.45 pounds for the blacks. The general average for the reds and whites combined, omitting Gloire des Sablons, which is cultivated only because of the color of its fruit, is 5.97 pounds per bush, see tables page 425 and page 427. For the black varieties grown in the same field and given similar treatment the general average for the same period is but 4.11 pounds per bush, or 1.86 pounds per bush less than the general average of the reds and whites. This may be taken as a fair indication of the general difference in productiveness of the two classes of fruit, but it should be remembered that varieties in the two classes vary greatly as to productiveness as has already been shown. With plants set four by six feet apart there are 1815 plants to the acre, and a difference of 1.86 pounds per bush amounts to 3395.9 pounds per acre. It appears from the above calculation that one would need to secure from one and a half to two cents more per pound for them than for the best varieties of red currants in order to secure equally good returns per acre. There is a limited demand for black currants in some markets and they are grown to some extent on a commercial scale.

NATIVE BLACK Currant.

Ribes aureum, Pursh.

The wild black currant of our woods has already been referred to in comparing it with the European black currant. So far as I know this species is not cultivated for its fruit. It bears dull black fruit, which is rather insipid. It begins to ripen usually the last week in July, being somewhat later in season than the ordinary garden currants.

There is a black currant native to the western prairies that has been introduced to garden culture to some extent. It is known as the Missouri currant, Buffalo currant, Golden currant, etc. It is sometimes planted in dooryards as a flowering shrub. It bears an abundance of yellow flowers, of spicy fragrance, and yellow or black fruit either singly or in leafy bracted racemes. It is known to botanists as Ribes aureum, Pursh.
One of the most widely advertised varieties of this species is the Crandall currant which originated in Kansas and was introduced seven or eight years ago. Other varieties of this species which we have received for testing are Utah Golden, Jelly and Yellow Utah.

DESCRIPTION OF VARIETIES.

Crandall.—From F. Ford & Son, Ravenna, O., 1889. Bush very vigorous, tall and upright. It is very unproductive as compared with cultivated currants of ordinary varieties. Its average yield per bush for the last three years has been less than a pound. The fruit has a thick tough skin that makes it objectionable for most culinary uses. The fruit varies from small to very large in size borne either singly or in small clusters with leafy bracts. Figure 22 is from a life size photograph of good clusters of this variety.

We have also received the Crandall from M. F. Pierson, Seneca Castle, N. Y., which differs somewhat from the Crandall sent here by the introducers of this fruit, Messrs. Ford & Son. The fruit of the plants received from Mr. Pierson is frequently one-half to three-fourths of an inch long, broad towards the apex and tapering towards the stem, making it somewhat pear shaped, while the plants from Messrs. Ford & Son have fruit more nearly round. Both varieties have a strong tendency to sucker. Figure 23 is from a life sized photograph of good clusters from plants received from Mr. Pierson.

Jelly.—From R. H. Blair & Co., Kansas City, Mo., 1893. Replying to an inquiry as to the origin of this currant Messrs. Blair & Co. wrote March 25, 1893, as follows:

"The Jelly currants were selected in western Kansas from acres of them growing on the prairies; but this variety being so
much superior was selected. We have fruited them and they are yielding such heavy crops and fine quality for jelly, we think they will be an acquisition to the currant list specially in the west."

As grown here the bush is tall, upright, with a tendency to form more fruit spurs and fewer suckers than the Crandall. Fruit usually borne in small clusters with leafy bracts. Berries medium to very large, some being three-fourths of an inch or more in diameter. Skin thick, tough, with a bluish black metallic lustre like that of Crandall. Pulp dark greenish yellow, seedy and with a peculiar flavor less agreeable than the flavor of white or red currants but more agreeable than that of the ordinary European black currants.

Figure 24 is from a life-size photograph of good clusters of this variety. The fruit is more uniformly large than that of Crandall and the plants appear to be as productive as Crandall though not so productive as ordinary red or black currants. So far as we can judge from a limited experience with it, it is preferable to Crandall.

While the varieties of the Missouri currant such as Crandall and Jelly, may have value in localities where the commonly cultivated currants do not thrive, as suggested in the letter of Messrs. Blair & Co., yet we do not consider them worthy of cultivation where ordinary currants can be grown.

It is possible that in the course of time the improvement of cultivated varieties of the Missouri currant may result in the production of late ripening fruit that will meet with sale in market because it does not come into competition with the kinds now commonly found in market. Considerable improvement will need
to be made over existing varieties before currants of this class are grown extensively for market.

PROPAGATION.

Varieties of currants do not reproduce themselves true from seed and so when it is desired to increase the number of plants of a variety it must be done by division of the plant in some way. Sometimes this is done in a small way by separating rooted canes from an old plant. In the nurseries, however, currants are propagated either by layers or by cuttings, the latter method being more commonly practiced.

PROPAGATION BY CUTTINGS.

Currants grow very readily from cuttings of young canes of a season’s growth. The cuttings may be made as soon as the wood is ripe and hard, which in this section is usually after the first of October, and set at once in nursery rows. Currant bushes that are sprayed and well cared for may hold their foliage till November, and so need to be stripped of leaves when the cuttings are made. It is thought that cuttings from ripe, hard currant wood root more readily and give a larger percentage of plants than do cuttings from immature wood. Sometimes it happens that the currants lose their leaves by leaf blight very early in autumn. In such instances the growth practically ceases and cuttings may be made at any time thereafter when it is convenient.

Many nurserymen make the cuttings early in the fall even when it is necessary to strip the leaves from the canes. They do this not
because they think the immature wood is better than well ripened wood for cuttings, but because it is convenient to do the work then, so as to have it out of the way before the rush of work that comes with the fall delivery season. Then, too, when the cuttings are made and planted early in the fall and the weather proves favorable, they begin to root before winter sets in and so are ready to start at once into growth when spring opens. This insures a long season for growth and favors the production of stronger one-year plants than can be grown from cuttings set in the spring.

**Spring setting.**—If the cuttings are not to be set out till spring they are tied in bunches, properly labeled and buried in a pit in well drained soil and covered about six inches deep with earth. The bunches are set in the pit with the butts upwards so as to keep the top buds dormant till the cuttings are planted. They may be set as soon as the ground is fit to work in the spring but it frequently happens that it is convenient to delay setting for some time after spring opens. In this case the pit should be covered with coarse manure or mulch of some kind while the ground is still frozen so that the soil covering the pit may be kept frozen and the cuttings kept dormant till the time when they are to be set.

The cuttings usually are about eight inches long and are made from the new wood, that is to say, from the new growth of the past season. If they are to be buried in pits to keep them for setting in spring the bundles should be tied with wire or willows, for twine is liable to rot and break.

**Soil and Cultivation.**—The soil for growing the cuttings should be well drained and fertile, plowed from ten to twelve inches deep and thoroughly pulverized. A trench about eight inches deep is made with the spade, against the perpendicular side of which the cuttings are placed one and a half to two inches apart, and with the top buds just above the surface of the ground. A little earth is then filled in and tramped very firmly around the base of the cuttings. This is one of the most important points in growing currant cuttings, that the soil be made firm around the base of the cuttings, and it cannot be done satisfactorily if the trench is filled before the earth is tramped. After this has been done the trench should be filled and the earth tramped again. If
the cuttings are set in the fall they should be completely covered when the ground begins to freeze, using either earth, coarse manure or some other mulch to prevent heaving by the frost. The objection to covering with earth is that the cuttings are more liable to be injured by the tools when they are uncovered in the spring than they are if covered with manure or straw. Should the cuttings be heaved or loosened by frost the ground should be tramped around them again after the frost has left the ground in the spring.

During the growing season the ground should be kept well cultivated and free from weeds. When the branches begin to appear these should be pruned away to a height of three or four inches from the ground. The plants are commonly grown two seasons in the nursery row before being set in the permanent location for fruiting. Strong one-year plants are very desirable for setting and scrub stock three or four years old is not desirable even though it be of larger size than the one-year plants.

**Propagating by Layers.**

When currants are grown from layers the old plants, called stools, are headed back so that they may send out numerous branches close to the ground. When the wood of the new growth has become somewhat hardened, in this section in June, the soil is thrown over the base of the new shoots a few inches deep so as to induce the formation of roots. In fall the earth is drawn away from the stools, and the rooted shoots are cut off, leaving good eyes or buds on the stools from which to grow another crop of shoots the following season. The rooted shoots may either be planted in nursery row at once or kept till spring before planting. The cultivation and pruning is the same as that already described for cuttings.

**Propagation from Seed.**

Currants may be propagated from seed but each plant thus secured is a new variety and the chances are that it will be inferior to the standard sorts already in cultivation. Some persons, however, take an interest in raising currants from seed with the hope of securing something worth introducing as a new variety. In some cases where this work has been done in an intelligent
and systematic way, encouraging results are being secured as is shown by the promising seedlings that have been sent to this Station for testing in recent years. Brief accounts of some of these new kinds together with illustrations of the fruit have been given on preceding pages.

The following method of growing currants from seed has been employed at this Station: As soon as the fruit is ripe the seed is separated from the pulp and planted in shallow, well drained boxes. The boxes are set in open frames and allowed to remain unprotected till the following spring. The seeds begin to germinate rather early in the spring. The boxes are then weeded and watered if necessary to keep the seedlings in good growing condition. When the seedlings are three or four inches high they are transplanted to an open frame or bed where they can be easily cared for during the rest of the season. The following season they are set in permanent position in field or garden. If they are being grown in large numbers it would be better to transplant them from the boxes to beds and the following year grow them in nursery rows thus having the plants two years old before setting them in permanent position for fruiting. At the end of the first season the plants usually are from two to eight inches high and unbranched. At the end of the second season vigorous ones are frequently found eighteen inches or more in height and with strong branches. During the third season's growth fruit spurs may begin to develop.

In preparing the boxes for the seed a layer of coarse gravel or potsherds is placed in the bottom of the box. The box is then filled with soil consisting of one part rotted manure and two parts of good loam. If the loam is heavy it may be lightened by mixing with an equal measure of sand. In preparing the soil for growing the seedlings the second year it is given a liberal dressing of well-rotted manure and then spaded and worked till it is mellow.

**FIELD AND GARDEN CULTURE.**

When grown for home use currants are too frequently neglected as to cultivation. Often they are allowed to stand in sod along fence rows, or under large trees where the ground is so crowded with the roots of other plants that the currants are necessarily
too much occupied in a struggle for existence to give either abundant yields or large fine flavored fruit. When currants are grown for home use they should be given thorough cultivation the same as when grown for market. To this end it is always best to select a location where a horse cultivator can be used.

In the fruit growing sections of New York currants are grown to some extent in field plantations by themselves but more frequently they are grown as a secondary crop in well cultivated orchards, especially in orchards of young trees or trees that do not completely shade the ground. Currants are also grown to some extent in vineyards, being set between the trellises. Where the Kniffen system of training grapes is followed currants are sometimes set between the vines under the trellis, the currants alternating with the vines, that is to say, a currant bush between two vines. In this position, however, the fruit is more liable to be spoiled by the spraying mixture when the vineyard is sprayed than is the fruit on bushes set midway between the rows.

Distance apart.—When set between vineyard rows the currants should stand five feet apart, although some advocate placing them as close as three and a half feet. Strong growing varieties need more room than the stocky moderately vigorous kinds. In orchards the currants should not be set nearer the trees than six feet. In the open field our practice has been to set them about four feet apart in the row with rows six feet apart. If they are to be cultivated both ways they should stand at least 5' x 5'. There seems to be a difference of opinion as to the advisability of cultivating both ways, many good cultivators holding to the opinion that it disturbs the roots too much. Others believe that it lessens the cost of cultivation more than enough to counterbalance any injurious effects on the plants. So far as I know no exact comparison of the two methods has been made. No doubt the mistake is frequently made of allowing the cultivator to run too deep close to the plant. In such cases when the cultivator is run both ways the roots would probably be disturbed enough to work more harm than good especially with shallow rooted kinds.

Planting.—Before setting the plants the broken or bruised roots should be removed with a clean cut since the clean cut surface will heal more readily than will the bruised or broken tis-
sues. The roots have been much shortened in digging and preparing for planting and the tops also should be shortened by removing enough branches to correspond with the amount of roots that have been removed. New branches will push out later in the season as fast as the new roots are able to support them.

The plants should be set about as deep as they stood in the nursery or a little deeper since the earth that is filled around them will settle somewhat after they are planted. After the hole is prepared for the plant the roots should be spread out, and covered a little with earth which should be trampled firmly around them. The hole is then filled and the earth again tramped firmly. A thin layer of fresh, loose earth is added to retain the moisture and prevent the rapid evaporation that takes place when the surface of the earth is hard and compact.

Fertilization.—For currants the soil must be kept fertile in order to secure good growth of plants and consequent good crops of fruit. It is our practice to put a forkful or two of stable manure around each bush in the fall. On our clay loam this not only furnishes plant food but has a beneficial mechanical effect in loosening the soil. With this treatment abundant crops of fine fruit are secured every year.

Mr. James R. Clarke, Milton-on-Hudson, N. Y., a successful grower of currants, in replying to an inquiry as to his method of fertilizing currants writes as follows:

"I do not use stable manure on my fruit, as I consider fertilizer much better. The first three years after setting I use nothing but fine ground bone with a small amount of muriate of potash; on older bushes I add nitrogen in some available form. I think that one thousand pounds of fertilizer to an acre can be used to advantage on full bearing bushes, namely, 600 lbs. of bone, 250 " muriate of potash, 150 " nitrate of soda or that amount of ammonia in some other form."

An application of a thousand pounds per acre of this mixture would give from 120 to 150 pounds of phosphoric acid, from 40 to 50 pounds of nitrogen and from 120 to 130 pounds of potash per acre. It is not to be supposed that the exact formula for commercial fertilizers that Mr. Clarke has found best adapted for his soil will also be the best formula for other kinds of soil in which currants are successfully grown, but it contains helpful sugges-
tions for those who wish to use commercial fertilizers for currants. For a general discussion of the use of commercial fertilizers the reader is referred to Bulletin 94 of this Station.

**Cultivation.**—As soon as the ground is fit to plow in spring it is our practice to work the manure, which was placed around the bushes the fall previous, into the soil by shallow cultivation near the bushes and somewhat deeper, perhaps three or four inches deep, midway between the rows. We believe that it is not well to disturb the roots by deep cultivation, especially near the bushes.

After this first cultivation the ground is given frequent shallow cultivation till about the middle of August when cultivation ceases so that the growth may be checked and the wood well ripened before freezing weather comes.

**Pruning.**—In large plantations it has been found most satisfactory to permit currants to grow in bush form rather than in the tree form, as the old canes may then be removed when they become unproductive as they do after a few years, and their places may be taken by new canes that have been permitted to grow for this purpose. Then too if the trunk of a currant in tree form is broken off or injured in any way a new plant must be set in its place, but when several canes are permitted to grow as is the case when the plants are grown in bush form, the accidental breaking of a trunk does not cause the death of the whole plant, but its place is readily filled by permitting other canes to grow from the root.

The tree form is well adapted to well cultivated gardens as the plants may be pruned into more symmetrical, attractive shape as trees than as bushes. To grow currants in tree form it is simply necessary to remove all buds from the part of the cutting or layer that is put in the ground. This prevents the growth of shoots from below the surface of the soil and consequently no suckers are formed. The tree currants may be kept in symmetrical shape by annually cutting back the shoots of new wood leaving but two or three buds to the shoot. This may be done at any convenient time while the leaves are off.

No definite rule can be given for pruning currants grown in bush form, for the kind and amount of pruning necessary is in each case determined by the condition and individual habits of
growth of the bush to be pruned. In general it may be said that
during the first two or three years the bushes require but little
pruning except to head back the new shoots so that fruit spurs
will develop all along the cane. Otherwise the fruit bearing
branches and fruit spurs will be found mostly near the top of a
long cane. When this is permitted, especially with some varie-
ties, such as Fay for example, the weight of the fruit is quite apt
to bend the canes nearly or quite to the ground.

Besides this heading-in to keep the bushes in shape the prun-
ing consists of removing the broken branches or those that droop
too closely to the ground, and removing the old wood after it has
passed the age of greatest productiveness. Mr. S. Haviland, a
practical fruit grower of Marlboro, N. Y., has I believe correct
ideas on this subject. He writes as follows:

"I am particular about trimming currants the first five years
from setting, cutting a few inches from the end of all the new
wood. If you do not, the end buds being stronger will push out
and all the others will die and the bush will soon be very tall,
with few fruit buds. If cut back nearly all the other buds will
start forming a cluster of fruit buds at their base thereby increas-
ing the crop and keeping the bush low for a much longer time.

Insect and fungous foes.—Fighting the insect and fungous
foes has come to be one of the essentials of successful currant cul-
ture. Chief among the insect enemies is the so called "currant
worm" which is the larva of a sawfly. It has four wings and the
female is somewhat larger than the common housefly, her body
being mostly yellow. On warm days early in spring these flies
appear and deposit their eggs in chains along the veins and mid-
rib on the under side of the leaf. In about ten days the eggs
hatch into the minute white worms, or rather, larvae. These be-
gin to feed on the leaves, grow rapidly and spread over the bushes,
often stripping them of their foliage in a few days. As they grow
they assume a light green color and at one stage they are cov-
ered with many black dots. When full grown they are about
three-quarters of an inch long. The flies do not appear all at
once and later in the season another brood is developed so that
continual watchfulness is necessary to hold these insects in check.

Early in the season before the fruit has attained much size
London Purple or Paris Green may be used against these insects
but later it is best to use powdered hellebore which may be ap-
plied even when the fruit is ripening without any fear of rendering the fruit unfit for food. These substances may be dusted on the foliage or applied in the form of a spray. We prefer the latter method, especially if there are very many bushes to be treated. When London Purple or Paris Green is used mix at the rate of one pound of the poison to from one hundred and fifty to two hundred gallons of water. When hellebore is used mix at the rate of one pound to fifty gallons of water. The applications should be made as soon as the worms, or larvæ, are discovered.

The currant borer is the larva of a small bluish-black moth, having three bright yellow bands across the abdomen. There is but one brood a year of this insect. The moth lays the eggs on or near the buds and the larva bores down through the pith of the cane. Pruning and burning the infested canes in autumn appear to be the best known way of fighting this insect.

The four-lined leaf bug, or yellow lined currant bug, is an insect that infests the leaves of the new growth. Slingerland advocates the pruning and burning of the tips of infested shoots in autumn, jarring the insects into a dish of kerosene and water, and spraying with kerosene emulsion, 1 to 5, as soon as the red young of the insect (nymphs) are seen in the spring.

The leaf spot diseases are probably best controlled by spraying with Bordeaux mixture, 1 to 11 formula. According to Pammel's experiments, spraying should begin soon after the fruit sets and continue at intervals of about two weeks till the fruit begins to color. To avoid spotting the fruit, no further spraying is done till the fruit is picked when one or two further applications are made.

So far as I have observed the leaf spot disease does not usually work much injury in this state before midsummer so that two thorough applications of Bordeaux mixture, the first made as soon as the fruit is picked and the second about two weeks thereafter, will probably be sufficient to control the disease. This opinion is based on general observation and not on definite experiments.

5 See Bull. of this Station, No. 86: 110.
6 Pammel, L. H., Bull. 17, Iowa Exp. Station, 419-421; Bull. 20, 716-718; Bull. 30, 289-291.
Leaf disease of black currants.—It should be remembered that the European black currants though not troubled by the currant worms (saw-fly larvae) which are so destructive to foliage of other currants, may be seriously affected with the leaf blight. Sometimes they are nearly defoliated by it in late summer or autumn. Spraying with Bordeaux mixture has given good results in treating this trouble the same as in treating the leaf disease of red currants.

Dying of canes.—In 1881, Mr. D. G. Fairchild’s attention was called to a dying of currant canes which was caused by a parasitic fungus which infested the cane. The disease was then reported from a district along the Hudson. During the past season a similar trouble, probably identical with that which Mr. Fairchild observed, has been reported to the Station by a fruit grower in the Hudson river valley. The diseased canes were submitted to Mr. F. C. Stewart of the Station staff in the second judicial department, who found mycelium very abundant in both pith and cambium. He has not yet determined the life history of the fungous parasite and has as yet no remedies to suggest. Dr. Halsted, Botanist of the New Jersey Experiment Station, in his annual report for 1894, page 327, speaks of fungi parasitic on currant canes, one a species of Nectria, and one a species of Homostegia. He recommends cutting out the diseased parts.

Preparation and application of remedies.—For a more complete discussion of the preparation and application of Bordeaux mixture, Paris Green or London Purple, Hellebore, etc., the reader is referred to Bulletins 74 and 86 of this Station, which may be had free on applying for them.