
MISSOURI
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BULLETIN NO. 18,

STRAWBERRIES.

COLUMBIA, MISSOURI,

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MISSOURI
Agricultural College Experiment Station.

BULLETIN NO, 18.

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INTRODUCTORY.

In carrying out the objects of the organization of an "Agricultural Experiment Station," we cordially invite the co-operation of all persons interested in its success. Suggestions as to lines of experimental work, problems to be solved, inquiries relating to agriculture, horticulture, stock, and the dairy will be cheerfully received and answered as far as possible; but no work will be undertaken unless of public value, and the results of which we are at liberty to use for the public good.

Specimens of grains and grasses; seeds of fruit and forest trees; vegetables, plants and flowers that are true to name; varieties of beneficial and injurious insects; samples of mineral waters and ores, and whatever may illustrate any department of agriculture will be gladly received, and due acknowledgments made in annual reports. Directions for collecting, packing and shipping such specimens will be furnished on application.

Bulletins will be issued at least quarterly, giving the results of experimental work as fast as completed, together with such suggestions and information as may be thought valuable to the farmers of Missouri.

The bulletins and reports of this Station are sent free to every citizen of Missouri who applies for them. Copies are sent as soon as issued to every newspaper in the State, to every Grange, Farmers' Alliance or other agricultural organization whose address can be obtained. Bulletins and reports are also sent to the leading agricultural papers of the country, and will be sent to *any* paper that may desire to exchange.

Letters relating to any special line of work should be directed to the officer in charge of that division, but all general correspondence relating to the work of the Station should be addressed to

EDWARD D. PORTER,
Director of Experiment Station.

Columbia, Boone Co., Mo.

STRAWBERRIES.

CHARLES A. KEFFER.

The early part of the season of 1892 was very wet and cold, and growth of all crops was slow. The strawberry suffered more than other small fruits from the wet weather, resulting in late fruiting, impaired quality and lack of firmness (even the firmest sorts being soft), and considerable rot while the fruit was immature. All varieties were equally affected by rot, but in other respects certain sorts were so much damaged that they are not included in the table on which this bulletin is based.

The strawberry plantation was made in the spring of 1890, and bore its first crop of fruit last year. It has received thorough cultivation since the plants were set. The first season the ground was kept in fine condition by frequent hoeings. All were grown in matted rows. After the first crop of fruit was removed the rows were thinned by hoeing out most of the plants, leaving small clumps a foot apart. By the end of the season runners had filled the vacant spaces, matting the rows for the second crop.

In January the entire plat was mulched. Over the greater part straw was used, but about twenty rows were covered with forest leaves, principally oak. This covering was found to be unsatisfactory, as the winter and spring rains compacted the mulch so as to greatly injure the plants. The straw was left on until the leaves began to grow through it in the spring, when it was raked off the plants and left between the rows, and the plantation received no further care until the fruit was gathered.

Considerable grain grew up from seeds in the straw, but this was found not to interfere with the perfect development of the crop. As soon as the crop was gathered the entire plantation was hoed, and it has since been kept in good growing condition by hoeing and cultivation. The straw mulch caused some inconvenience during the first cultivation, but none thereafter. In the latter part of August the experiment rows were again thinned, this time to single plants a foot apart, care being taken to leave the one-year-old plants.

In the following table, the letters H and P, in the second column, indicate perfect and pistillate varieties, respectively. Generally speaking, the pistillate sorts are heavier croppers than the perfect; but in making a strawberry bed at least one-third of the rows should be of a perfect-flowered kind to insure the fertilization of the others. In the color column, L indicates light, M₂ medium, D dark. In the texture column, S means soft, M medium, F firm. In the remainder of the table, values are shown by the scale of 1 to 10.

The date of ripening, size, flavor and productiveness for 1891 are taken from Bulletin No. 16, written by my predecessor, Prof. J. W. Clark. The standards of size and productiveness are nearly the same for all growers of berries, but individual taste has much to do in determining the flavor of a fruit; hence, it should be borne in mind that the same person did not make the tests for the two years. Those varieties in which no entry is made for 1891 fruited for the first time this year. When a variety failed to produce fairly typical specimens of fruit, it is not recorded for this season.

| NAME OF VARIETY. | Flower. | Color. | Texture. | SIZE. | | Flavor. | | Pro- ductive- ness. | | Date of Ripening. | | Vigor. | Runners. | Rust. |
|--------------------|---------|--------|----------|-------|------|---------|------|---------------------------|------|----------------------|--------|--------|----------|-------|
| | | | | 1891 | 1892 | 1891 | 1892 | 1891 | 1892 | 1891 | 1892 | | | |
| | | | | | | | | | | | | | | |
| Alpha | H P | M D | F | 6 | 3 | 6 | 7 | 6 | 5 | May 25 | June 1 | 6 | 6 | 6 |
| Atlantic | P M | D M | F | 7 | | 7 | | 7 | | | | 5 | 5 | 8 |
| Barton | H P | L M | F | | 10 | | | | | | June 5 | 8 | 8 | 3 |
| Beder Wood | H P | L D | F | 6 | 6 | 5 | 6 | 7 | 8 | | June 3 | 9 | 8 | 4 |
| Belle Bordelaise | H H | L D | F | 2 | 1 | 0 | 2 | 3 | 6 | May 30 | June 4 | 5 | 6 | 6 |
| Belmont | H H | M M | S | 8 | | 8 | | 8 | | May 31 | | 5 | 6 | 7 |
| Bidwell | H H | M M | S | 6 | 5 | 7 | 7 | 6 | 5 | May 30 | June 6 | 8 | 9 | 4 |
| Big Bob | H H | M M | S | 6 | 5 | 7 | 6 | 7 | 6 | June 7 | June 7 | 8 | 8 | 4 |
| Bomba | H P | D M | F | 7 | 6 | 7 | 5 | 5 | 5 | May 22 | June 6 | 3 | 4 | 9 |
| Boynton | H P | M M | F | 7 | 7 | 7 | 7 | 6 | 6 | | June 5 | 8 | 6 | 1 |
| Bubach No. 5 | P P | L M | F | 8 | 7 | 8 | 6 | 8 | 7 | June 1 | June 8 | 7 | 7 | 3 |
| Bubach No. 132 | P P | M L | F | 8 | 6 | 9 | 4 | 8 | 8 | May 27 | June 4 | 10 | 9 | 2 |
| Buchley's Seedling | H P | M M | F | 8 | 8 | 6 | 6 | 8 | 8 | | June 3 | 9 | 9 | 3 |
| Burt | H P | M M | F | 6 | 5 | 6 | 5 | 5 | 6 | May 28 | June 5 | 6 | 6 | 4 |
| Champion | H P | M M | F | 7 | 7 | 7 | 7 | 6 | 6 | May 29 | | 4 | 1 | 5 |
| Chas. Downing | H P | M D | F | 6 | 5 | 8 | 8 | 5 | 3 | May 29 | June 6 | 4 | 8 | 8 |
| Clingto | H H | M M | F | 6 | 5 | 5 | 5 | 6 | 6 | May 29 | | 9 | 8 | 3 |
| Cloud Seedling | H P | M D | F | 5 | 5 | 7 | 4 | 4 | 4 | May 29 | June 4 | 9 | 10 | 4 |
| Cornelia | H P | M M | F | 8 | | 7 | | 5 | 5 | May 29 | | 7 | 3 | 3 |
| Covell | H H | D M | F | 7 | 3 | 6 | 7 | 7 | 3 | May 21 | May 30 | 3 | 3 | 8 |
| Crawford | H H | D M | F | 3 | 6 | 7 | 6 | 7 | 3 | May 28 | June 6 | 8 | 4 | 2 |
| Crescent | H P | M M | F | 5 | 6 | 6 | 6 | 10 | 8 | May 25 | May 31 | 8 | 4 | 2 |
| Crimson Cluster | H P | M M | S | 6 | 5 | 5 | 5 | 4 | 6 | May 28 | June 1 | 9 | 9 | 3 |
| Crystal City | H H | M L | F | 3 | 4 | 8 | 5 | 3 | 3 | May 21 | May 29 | 9 | 10 | 3 |
| Cumberland | H P | M L | F | 9 | 5 | 8 | 7 | 7 | 4 | May 25 | June 3 | 8 | 5 | 6 |
| Daisy | H P | M M | F | 7 | 7 | 7 | 5 | 7 | 6 | May 29 | June 4 | 6 | 6 | 5 |
| Daniel Boone | H P | M D | F | 8 | 5 | 8 | 5 | 5 | 6 | May 27 | June 7 | 6 | 6 | 4 |
| Dew | H H | M D | F | 10 | | 7 | | 6 | 2 | June 3 | | 9 | 4 | 4 |
| Emerald | H H | M M | F | 7 | 7 | 7 | 7 | 4 | 4 | May 29 | | 7 | 9 | 4 |
| Enhance | H P | M M | F | 7 | 3 | 7 | 5 | 5 | 4 | June 3 | June 8 | 8 | 8 | 8 |
| Eureka | H P | M M | F | 6 | 3 | 7 | 9 | 4 | 1 | May 29 | June 7 | 6 | 6 | 6 |
| Excelsior | H P | M M | F | 7 | 8 | 7 | 8 | 6 | 6 | May 29 | June 5 | 7 | 5 | 5 |
| Farnsworth | H P | L M | F | 6 | | 7 | | 4 | 4 | May 27 | | 8 | 8 | 4 |
| Felton | H P | D E | F | 7 | 7 | 7 | 7 | 3 | 3 | | June 8 | 8 | 7 | 3 |
| Gandy | H P | M M | F | 9 | | 8 | | 6 | 6 | June 5 | | 8 | 6 | 6 |
| Garfield, Mrs. | H P | M M | F | 7 | 5 | 5 | 6 | 5 | 3 | May 25 | June 5 | 8 | 7 | 4 |
| Garland | H H | M M | S | 8 | | 7 | | 5 | 5 | May 27 | | 8 | 8 | 2 |
| Garretson | H H | M D | S | 5 | | 7 | | 6 | 6 | June 1 | | 8 | 8 | 7 |
| Gypsy | H P | M M | F | 7 | 6 | 7 | 8 | 7 | 4 | May 28 | June 3 | 5 | 5 | 10 |
| Glendale | H P | M D | F | 7 | 5 | 5 | 4 | 6 | 4 | May 29 | June 5 | 8 | 7 | 5 |
| Gold | H P | L M | F | 8 | 5 | 8 | 6 | 5 | 2 | June 3 | June 7 | 6 | 5 | 8 |
| Golden Defiance | H P | L M | F | 7 | 4 | 7 | 6 | 6 | 1 | June 2 | June 9 | 6 | 5 | 4 |
| Governor Hoard | H P | M D | S | 7 | 7 | 7 | 7 | 4 | 4 | June 6 | June 6 | 7 | 7 | 6 |
| Great Pacific | H P | D M | F | 8 | 8 | 5 | 5 | 7 | 7 | June 7 | | 8 | 5 | 2 |
| Greenville | H P | M D | M | 9 | 9 | 8 | 8 | 10 | 8 | May 27 | June 2 | 9 | 8 | 2 |
| Harland's No. 1 | H P | L M | M | 10 | 5 | 8 | 5 | 8 | 5 | May 29 | June 7 | 8 | 8 | 4 |
| Hart's Minnesota | H H | L M | S | 3 | 5 | 8 | 8 | 4 | 3 | May 21 | June 1 | 9 | 10 | 4 |
| Hatfield | H H | L S | S | 7 | 5 | 7 | 6 | 5 | 3 | May 28 | June 5 | 8 | 8 | 5 |
| Haverland | H P | M L | M | 8 | 7 | 8 | 7 | 8 | 8 | May 28 | June 3 | 9 | 8 | 2 |
| Henderson | H P | M M | M | 6 | 4 | 10 | 8 | 4 | 3 | May 28 | June 4 | 7 | 6 | 4 |
| Itaska | H P | M S | S | 6 | 4 | 6 | 6 | 6 | 4 | May 29 | June 5 | 9 | 8 | 4 |
| Jas. Vick | H P | M M | M | 5 | 3 | 7 | 9 | 6 | 2 | May 30 | June 8 | 5 | 4 | 7 |
| Jersey Queen | H P | L M | S | 8 | 6 | 9 | 9 | 4 | 5 | May 30 | June 6 | 6 | 8 | 6 |
| Jessie | H P | M M | S | 8 | 7 | 8 | 7 | 5 | 4 | May 26 | June 6 | 7 | 6 | 3 |
| Jewell | H P | M S | S | 8 | 7 | 9 | 5 | 5 | 6 | May 26 | June 7 | 5 | 5 | 2 |
| Jumbo | H H | M L | S | 9 | 4 | 8 | 6 | 7 | 2 | May 25 | June 6 | 5 | 6 | 4 |
| Kentucky | H P | M M | F | 7 | 5 | 6 | 5 | 6 | 3 | June 3 | June 9 | 6 | 9 | 7 |
| Lady Rusk | H P | D E | F | 7 | 7 | 7 | 7 | 6 | 8 | May 27 | June 4 | 4 | 6 | 7 |
| Legal Tender | H P | M D | S | 5 | 3 | 7 | 7 | 6 | 3 | May 30 | June 8 | 9 | 7 | 3 |
| Lenrig's White | H P | L M | S | 4 | 3 | 9 | 6 | 1 | 1 | May 29 | June 6 | 5 | 4 | 7 |
| Lida | H P | M M | S | 8 | 7 | 3 | 6 | 8 | 7 | May 30 | June 6 | 7 | 7 | 1 |
| Logan | H P | M M | S | 9 | 8 | 7 | 4 | 7 | 5 | May 26 | June 7 | 6 | 6 | 5 |
| Louise | H H | L S | S | 6 | | 7 | | 4 | 4 | May 29 | | 5 | 5 | 4 |
| Lovett's Early | H H | | | 6 | 6 | 7 | 7 | 5 | 5 | | June 2 | 5 | 5 | 3 |
| Maggie | H H | M D | S | 7 | 6 | 6 | 5 | 7 | 5 | May 28 | June 6 | 6 | 3 | 3 |
| Mammoth | H H | M F | F | 8 | 4 | 5 | 6 | 4 | 4 | May 29 | June 6 | 4 | 3 | 4 |

| NAME OF VARIETY. | Flower. | Color. | Texture. | Size. | | Flavor. | | Pro-ductive-ness. | | Date of Ripening. | | Vigor. | Runners. | Rust. |
|------------------------|---------|--------|----------|-------|------|---------|------|-------------------|------|-------------------|---------|--------|----------|-------|
| | | | | 1891 | 1892 | 1891 | 1892 | 1891 | 1892 | 1891 | 1892 | | | |
| | | | | | | | | | | | | | | |
| Manchester..... | H | M | F | 6 | 7 | 6 | 5 | 5 | 4 | May 30 | June 7 | | | |
| M. A. C. No. 10..... | H | M | F | 6 | 6 | 8 | 5 | 6 | 2 | May 26 | June 8 | | | |
| M. A. C. No. 20..... | H | D | F | 5 | 5 | 7 | 10 | 6 | 2 | May 23 | June 8 | | | |
| M. A. C. No. 23..... | H | D | F | 5 | 5 | 10 | 10 | 7 | 9 | May 21 | June 1 | | | |
| Martha..... | H | D | F | 7 | 7 | 4 | 7 | 5 | 5 | May 25 | June 6 | | | |
| May King..... | H | M | F | 7 | 7 | 8 | 9 | 7 | 4 | May 25 | May 30 | | | |
| Miami..... | H | M | S | 7 | 7 | 9 | 8 | 7 | 9 | May 29 | | | | |
| Michael's Early..... | H | L | S | 6 | 8 | 8 | 8 | 8 | 8 | May 21 | May 30 | 10 | 10 | 3 |
| Middlefield..... | H | L | S | 7 | 7 | 7 | 7 | 4 | 4 | May 28 | June 4 | 10 | 10 | 3 |
| Miller's Seedling..... | H | L | D | 7 | 7 | 8 | 6 | 9 | 7 | May 26 | June 4 | 9 | 9 | 3 |
| Miner's Prolific..... | H | L | D | 7 | 7 | 7 | 7 | 7 | 7 | May 27 | June 4 | 9 | 9 | 3 |
| Monarch..... | H | H | F | 1 | 1 | 1 | 2 | 2 | 5 | May 26 | June 3 | 9 | 9 | 9 |
| Montreuil..... | H | D | F | 1 | 1 | 1 | 2 | 2 | 6 | May 26 | June 3 | 9 | 9 | 9 |
| Mt. Holyoke..... | H | L | F | 7 | 7 | 7 | 5 | 5 | 6 | June 1 | June 5 | 9 | 9 | 4 |
| Mt. Vernon..... | P | L | M | 7 | 7 | 7 | 3 | 5 | 1 | June 2 | June 8 | 9 | 9 | 4 |
| Norman..... | H | D | M | 4 | 4 | 5 | 5 | 4 | 4 | June 1 | June 8 | 9 | 9 | 7 |
| Ohio..... | H | P | M | 6 | 6 | 7 | 5 | 4 | 4 | June 1 | June 8 | 9 | 9 | 7 |
| Old Ironclad..... | H | P | M | 5 | 5 | 5 | 5 | 3 | 3 | May 28 | June 11 | 9 | 9 | 4 |
| Oliver..... | H | D | M | 7 | 7 | 8 | 5 | 6 | 6 | June 30 | June 6 | 9 | 9 | 4 |
| Ontario..... | H | M | S | 6 | 6 | 8 | 8 | 8 | 8 | June 1 | June 11 | 9 | 9 | 3 |
| Parker Earle..... | H | H | M | 6 | 6 | 6 | 6 | 10 | 10 | June 1 | June 11 | 9 | 9 | 5 |
| Parry..... | H | M | F | 8 | 8 | 8 | 8 | 7 | 7 | May 30 | June 11 | 9 | 9 | 5 |
| Fatuxent..... | H | M | M | 7 | 7 | 9 | 9 | 6 | 6 | May 26 | June 8 | 9 | 9 | 5 |
| Pearl..... | H | M | M | 7 | 7 | 9 | 9 | 6 | 6 | May 27 | June 8 | 9 | 9 | 5 |
| Photo..... | H | D | M | 3 | 3 | 3 | 3 | 3 | 3 | May 26 | June 6 | 9 | 9 | 8 |
| Piper's Seedling..... | H | L | S | 2 | 2 | 3 | 3 | 2 | 2 | May 26 | June 3 | 10 | 10 | 7 |
| Porter's Seedling..... | H | L | M | 5 | 5 | 7 | 5 | 5 | 5 | May 26 | June 2 | 9 | 9 | 3 |
| President Lincoln..... | H | H | F | 6 | 6 | 6 | 5 | 7 | 6 | May 30 | June 6 | 9 | 9 | 4 |
| Prince of Berries..... | H | M | M | 7 | 7 | 9 | 9 | 4 | 4 | May 31 | June 6 | 9 | 9 | 6 |
| Princess..... | P | L | M | 10 | 10 | 5 | 5 | 6 | 6 | June 6 | June 6 | 9 | 9 | 1 |
| Ray's Prolific..... | H | D | M | 6 | 6 | 6 | 6 | 5 | 5 | May 27 | June 5 | 9 | 9 | 3 |
| Riehl's No. 1..... | H | D | S | 5 | 5 | 7 | 7 | 7 | 7 | May 28 | June 2 | 9 | 9 | 6 |
| Riehl's No. 2..... | H | M | F | 6 | 6 | 7 | 4 | 6 | 6 | May 28 | June 6 | 9 | 9 | 7 |
| Royal Hautbois..... | H | L | F | 2 | 2 | 2 | 2 | 2 | 2 | May 26 | June 6 | 9 | 9 | 8 |
| Riehl's No. 4..... | H | L | S | 4 | 4 | 7 | 6 | 7 | 5 | June 6 | June 6 | 9 | 9 | 4 |
| Saunders..... | H | P | M | 7 | 7 | 7 | 5 | 9 | 9 | June 6 | June 6 | 9 | 9 | 3 |
| Shusters Gem..... | H | P | M | 9 | 9 | 7 | 5 | 9 | 9 | May 27 | June 3 | 9 | 9 | 3 |
| Southard's No. 1..... | H | H | F | 3 | 3 | 7 | 7 | 7 | 7 | May 26 | June 2 | 9 | 9 | 6 |
| Southard's No. 2..... | H | H | F | 2 | 2 | 5 | 5 | 6 | 6 | May 26 | June 4 | 9 | 9 | 5 |
| Stayman's No. 1..... | H | M | F | 4 | 4 | 6 | 6 | 8 | 8 | May 28 | June 1 | 9 | 9 | 1 |
| Stayman's No. 2..... | H | M | F | 5 | 5 | 6 | 6 | 5 | 5 | May 29 | June 8 | 10 | 10 | 2 |
| Summit..... | P | M | M | 6 | 6 | 7 | 7 | 5 | 5 | May 31 | June 8 | 10 | 10 | 4 |
| Triumph de Gand..... | H | M | M | 5 | 5 | 7 | 7 | 3 | 3 | May 29 | June 6 | 9 | 9 | 6 |
| Fruit..... | H | M | M | 5 | 5 | 6 | 6 | 5 | 5 | May 29 | June 7 | 9 | 9 | 4 |
| Van Deman..... | H | H | F | 7 | 7 | 7 | 7 | 6 | 6 | May 26 | June 2 | 9 | 9 | 4 |
| Warfield No. 2..... | H | D | M | 4 | 4 | 5 | 5 | 3 | 3 | May 28 | June 2 | 9 | 9 | 4 |
| Warren..... | H | P | D | 5 | 5 | 7 | 7 | 9 | 9 | May 29 | June 7 | 9 | 9 | 3 |
| White Novelty..... | H | H | F | 3 | 3 | 7 | 7 | 6 | 6 | May 31 | June 6 | 9 | 9 | 3 |
| Wolverton..... | H | L | M | 6 | 6 | 4 | 4 | 6 | 6 | May 30 | June 5 | 9 | 9 | 7 |
| Wilson..... | H | H | F | 6 | 6 | 4 | 4 | 4 | 4 | May 30 | June 11 | 9 | 9 | 7 |
| Woodmanse..... | H | M | L | 6 | 6 | 7 | 7 | 7 | 7 | May 29 | June 4 | 9 | 9 | 5 |
| Walton..... | H | P | L | 6 | 6 | 5 | 5 | 5 | 5 | June 7 | June 7 | 9 | 9 | 5 |
| Yale..... | H | L | L | 7 | 7 | 6 | 6 | 5 | 5 | June 7 | June 7 | 9 | 9 | 5 |

Extensive experiments in the origination of new varieties of strawberries are under way, but are not sufficiently advanced for results to be reported.

SUMMARY.

1. Best ten varieties, all things considered, named in order of earliness: Michel's Early, Crescent, M. A. C. No. 23, Greenville, Haverland, Shuster's Gem, Miner's Prolific, Ontario, Bubach No. 5, Parker Earle.

2. Ten varieties producing the largest fruit: Barton, Princess, Greenville, Ontario, Middlefield, Excelsior, Buchley's Seedling, Logan, Great Pacific, Haverland.

3. Ten best, quality alone considered: M. A. C. No. 23, Henderson, Jersey Queen, Greenville, Hart's Minnesota, Chas. Downing, Eureka, Haverland, Excelsior, Ontario.

4. Ten most productive varieties: Shuster's Gem, Crescent, Greenville, Parker Earle, Michel's Early, Bubach No. 132, Haverland, Miner's Prolific, M. A. C. No. 23, Bubach No. 5.

5. Ten sorts freest from rust: Boynton, Princess, Stayman's No. 1, Garland, Haverland, Crawford, Crescent, May King, Stayman's No. 2, Walton.

Note.—Rust is not sufficient in any of the varieties in the first list to seriously affect their value.

6. A list that will be found valuable for the home experimenter: The first list given, and Beder Wood, Barton, Bubach No. 132, Buchley's Seedling, Crawford, Crimson Cluster, Daisy, Excelsior, Great Pacific, Harland's No. 1, Hart's Minnesota, Lida, Miami, Middlefield, Parry, Riehl's No. 1, Saunders.

7. Straw is a better winter covering for strawberries than leaves.