

THE UNIVERSITY OF TENNESSEE AGRICULTURAL EXPERIMENT STATION Knoxville

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*Cooperative with Office of Cereal Crops and Diseases, U. S. D. A.

The Agricultural Building, containing the offices and laboratories of the Experiment Station, the College class rooms, and the headquarters of the Agricultural Extension Service, is located at the University Farm, on Kingston Pike, about one mile west of the main campus. Farmers are cordially invited to visit the building and the experimental grounds.

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BULLETIN No. 146

SEPTEMBER, 1932

THE McCLINTOCK STRAWBERRY

By

BROOKS D. DRAIN

Horticulturist



Fig. 1—Fruits of the McIntock strawberry. They run wedge to round conic in shape and large in size. In addition, the crop ripens in midseason and the berries maintain a good size up to the last picking. Note the uniformity in shape, which is characteristic of this variety.

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INTRODUCTION

A Purnell project relating to inheritance in the cultivated strawberry was begun in 1927 by J. A. McClintock, at that time the Station Horticulturist. In the course of the study a seedling of much promise was discovered, which has been named "McClintock." The object of this publication is to call attention to and describe this selection, which appears to be a valuable addition to the varieties now being grown in the State.

The new variety has large, attractive fruit, as is shown in Fig. 3, and handles well. The yield has been good, fully equal to or better than that of other varieties commonly grown in Tennessee. The berries, unlike those of many varieties, maintain a good size throughout the season. The stiff, erect foliage is comparatively free from leaf spot and scorch. Growth starts early in the spring, and has been vigorous on both poor and fertile soils.

EXPERIMENTAL RECORD

A crate of berries supposed to be Aroma was received in the spring of 1923 and seed from these berries were planted at that time. Perfect, or pistillate, varieties, like Aroma, are self-fertile, and it is reasonable to believe that these seeds developed from selfed blossoms. Since this new seedling resembles Klondike more than any other commonly grown variety, both in fruit and plant characters, it has been compared with Klondike in most of our trials.

YIELD OF FRUIT

Plantings of the new strawberry were made in various parts of Tennessee in order to afford some indication of its adaptability to various soils and locations. Following are brief reports of these trials.

¹The records previous to September, 1931, were kept by J. A. McClintock and H. L. Fackler.

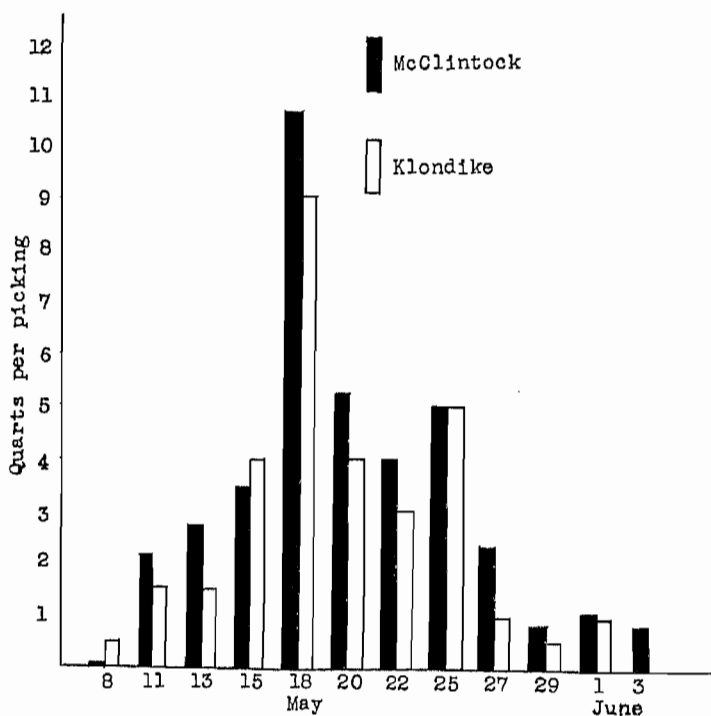


Fig. 2—Comparative yields, by pickings, of McClintock and Klondike varieties, for the season of 1931.

At the West Tennessee Station²

The black columns of Fig. 2 represent the average yields per row of 6 rows of McClintock grown at the West Tennessee Experiment Station, Jackson. The white columns give the comparative yields of Klondike. Both varieties started blossoming March 23, 1931. In narrow, matted rows, planted 3 feet apart, Klondike gave 310 crates per acre, compared with 378 crates for McClintock. Berries of the latter ran larger than Klondike and maintained a good size up to the last picking. From the above and similar records, we conclude that the two varieties have practically the same ripening season.

At the Knoxville Station

Records of yields of the McClintock variety at the Knoxville Station have extended over several years. Plantings previous to 1930 were made with very wide spacing to avoid mixing varieties and were not comparable to field conditions. Table 1 is for the season of 1931, and while it is only for one season, it is representative of these yield records.

²This record was taken by Ben P. Hazlewood.

TABLE 1—*Strawberry yields at Knoxville, season 1931*

Variety	Yield per acre	
	Quarts	Crates
McClintock	7171	298.8
Bellmar	5520	230.0
Klondike	5245	218.5

The rows were 3 feet apart and trained to a narrow matted row. Here, as in the trials in West Tennessee, McClintock gave a somewhat larger yield than Klondike. Bellmar, a new variety introduced by the United States Department of Agriculture, did fairly well in this test.

At Murfreesboro³

Trial plots similar to the above, located at the State Teachers College, Murfreesboro, gave a comparison with Premier and Aroma, which are standard varieties in certain districts.

TABLE 2—*Strawberry yields at Murfreesboro, season 1931*

Variety	Yield per acre	
	Quarts	Crates
Premier.....	5899.0	224.9
Aroma.....	4535.6	188.9
Klondike.....	4474.8	186.4
McClintock.....	4341.1	180.8
Gandy.....	2480.6	103.3

The rows were 4 feet apart and 175 feet long, with 5 rows to each variety. Aroma, Klondike, and McClintock gave very nearly the same yield in this test, while Premier did appreciably better. Premier, however, is somewhat soft for shipping. McClintock berries ran nearly one-half larger than Klondike—46 berries per pint for the former, compared with an average of 62.5 for the latter. On the whole, we consider McClintock as comparing favorably in yield with other varieties commonly grown in Tennessee.

At the Mericourt Station

The trial plots at the Mericourt Experiment Station, Clarksville, were located on soil of moderate fertility. The strawberry plants were fertilized with 500 pounds per acre of a complete fertilizer at the time of setting.

TABLE 3—*Strawberry yields at Clarksville, season 1931*

Variety	Average yield per acre	
	Pounds	Crates
McClintock.....	7873.4	272.7
Klondike.....	5571.4	202.2

This planting was spaced unusually wide to avoid mixing varieties, but the plants were kept in the usual matted, or hedge, row and 4 feet between rows was used in calculating yields. The above averages

³Through the cooperation of K. T. Hutchinson.

are for 9 plots of McIntock and 4 of Klondike. Here, as in other sections of Tennessee, McIntock did appreciably better than Klondike. This record is for one season only.

ABILITY TO SHIP AND HANDLE

When berries are intended for distant markets, shipping quality is about as important as yield. Variations in maturity have a marked effect on shipping quality. Single-crate express shipments were chosen, with more than one variety in the crate. Such shipments usually receive very rough handling. Table 4 is representative of these tests.

Produce men made the comment that "all of Lot 1 were over-ripe." McIntock was their first choice. Two berries were decaying ("whiskers") in the middle layer of the McIntock boxes of Lot 2; otherwise the fruit was attractive except for slight bruising. The Klondike fruit of this shipment would do for immediate consumption, but bruising had detracted from its appearance. Similar shipments were made to Chicago and Washington, D. C. While shipments of McIntock strawberries are likely to bruise if overripe, the variety on the whole has compared very well with Klondike in these tests.

TABLE 4—*Express shipments from Tennessee to Columbus, Ohio*¹

Lot Variety	No. 1		No. 2					
	McClint.	Klondike	McClintock			Klondike		
Layer in crate.....	Middle	Bottom	Top	Middle	Bottom	Top	Middle	Bottom
Per cent bruising.....	25	10	Few	4	25	50	Some	50
Per cent soft.....	20	20	5	10	10	2	5	5
Amount settled inches.....	$\frac{1}{4}$ to $\frac{1}{2}$	$\frac{1}{4}$ to $\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
Appear- ance.....	Fair	Fair	Good	Fair	Fair	Fair	Fair	Good
Luster.....	Good	Fair	Good	Good	Fair	Good	Good	Good

¹Through the cooperation of Chas. W. Hauck.

STORAGE QUALITY

An attempt was made to measure the ability of several varieties to stand up while on display. Room temperatures were used and a box of each variety was counted out as it came from the field. Table 5 gives the record at 2- and 5-day intervals.

TABLE 5—*Keeping quality of strawberries*

Variety	No. of berries at start May 14, 1930	Marketable fruit	
		May 16, 1930	May 19, 1930
McClintock.....	40	Per cent 92.5	Per cent 42.5
Klondike.....	120	87.5	35.8
Gandy.....	45	80.0	6.6

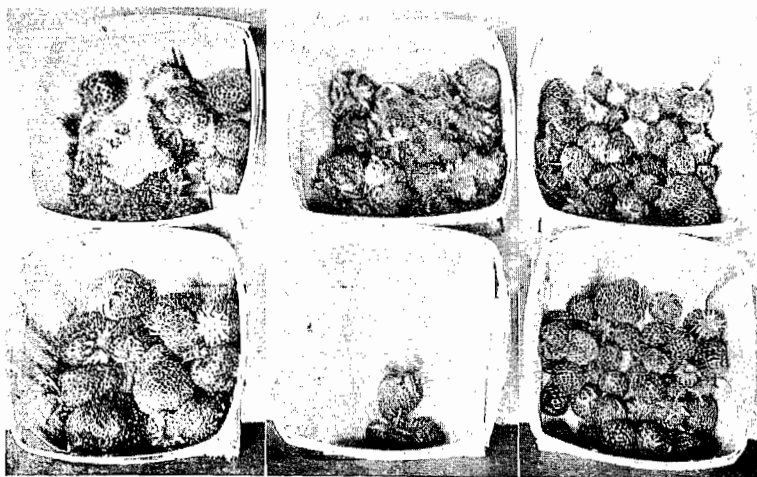


Fig. 3—Samples of strawberries, showing their keeping quality after being on display for 5 days at room temperatures. McClintock on the left; Gandy in the center; and Klondike on the right. The lower boxes show the marketable fruit in each case.

Gandy failed to stand up well in this test. The two varieties Klondike and McClintock were nearly equal in keeping quality. The McClintock and Gandy berries were much larger than Klondike, a pint box containing only 40 and 45 specimens, respectively. (See Fig. 3.)

DISEASE RESISTANCE

Strawberry leaf spot, caused by *Mycosphaerella fragariae* (Tul.) Lindan, and leaf scorch, caused by *Mollisia carliana* (E. and E.) Sacc., seriously attack the foliage of some varieties under Tennessee conditions. From the first, McClintock has been comparatively free from these two diseases. Our notes have uniformly been, "Slight scorch and very slight leaf spot," when near-by varieties were seriously affected by these diseases. The healthy, upright, and vigorous foliage of this variety, as is shown in Fig. 4, frequently enables one to identify it among adjoining plots of other varieties.

RUNNER FORMATION

Varieties vary in their ability to form runner plants, especially in seasons of scant or unusually heavy rainfall. Counts made of the number of runner plants formed in a planting of 30 varieties indicated that both McClintock and Klondike were about average in this character. Table 6 gives the record for two of these varieties and is representative of the counts made.

Too many runner plants result in crowding in the row and an unsatisfactory crop the following season, unless a part of the plants are dug out. Too few runners give a poor stand and a reduced yield

per acre. The McClintock variety has formed a satisfactory number of runner plants in all but the most extreme locations and in dry as well as moist seasons.

TABLE 6—*Ability to form runners*

Variety	Runner plants from 15 mother plants		
	June 2, 1927		Sept. 2-9, 1927
	Primary	Secondary	
	Number	Number	Number
Klondike.....	56	23	1116
McClintock.....	53	18	1100

TECHNICAL DESCRIPTION OF THE McCLINTOCK VARIETY

Leaves above average in size and thickness; usually dark green in color and somewhat rugose.

Plants numerous, vigorous, stiffly upright, and above average in height (see Fig. 4); usually free from leaf spot, and productive.

Flowers midseason; size large; petals 6-8; stamens numerous.

Fruit ripens midseason, about the same time and period as Klondike; withstands drouth well. Fruit-stems long and medium in thickness. Shape wedge to round conic (see Fig. 1). Size large, uniform, and maintained well throughout the season. Sepals leafy and large. Core usually slightly hollow and lighter-colored than surrounding flesh. External color of the fruit bright red, lighter than Aroma and more glossy than Klondike. Color of flesh light red. Flavor sprightly, subacid to somewhat acid. Texture firm and juicy. Seeds slightly sunken, and medium in number. Dessert quality good. Shipping quality good.



Fig. 4—A plant of Premier on the left, McClintock in the center, and Aroma on the right. The foliage of McClintock is stiff and upright and the leaves are of good size.