

## STRAWBERRY PRODUCTION AT THE EDEN SHALE FARM

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The Eden Shale Farm of the Kentucky Agricultural Experiment Station, located in Owen county, was established to determine what crops could be most successfully grown in that area of Kentucky. Because strawberries appeared to be a promising fruit crop, a planting was made in 1956. Cultural practices were the same as those recommended in Kentucky Cooperative Extension Circular 524, "Strawberry Production in Kentucky." The work since then has been limited to variety testing and fertility studies. All experiments were replicated and randomized in such a manner that they could be statistically analyzed. All production results are given as 24-quart crates per acre.

### EXPERIMENTAL PROCEDURES: 1956 PLANTING

The 1956 planting consisted of the three principal commercial varieties grown in Kentucky - Tennessee Beauty, Blakemore, and Pocahontas. They were replicated four times in a randomized block design. Each variety in each replicate was represented by six rows 121 feet long. The plants were planted 4 feet x 2 feet. The plots were then split across varieties in each replicate to test the efficacy of late winter applications of  $P_2O_5$  and  $K_2O$ . A preplanting application of 1,000 pounds of 5-10-10 per acre was made and disked in. One hundred and 50 pounds of ammonium nitrate was applied over the rows on September 1 and brushed off the plants. This was to aid fruit bud differentiation and set. An 800-pound application of 0-20-20 per acre was made on one-half of the plots in late February 1957. All subsequent plantings received essentially the same treatment except for the omission of 0-20-20 in late winter.

All plantings were rejuvenated immediately after harvest. Five hundred pounds of 12-12-12 per acre was applied over the rows and the leaves mowed. The row was then narrowed to about 18 to 20 inches and cultivation and weed control practiced as for the first growing season.

Chemical weed control was used most years. Three pounds of Sesone per acre at approximately monthly intervals helped considerably in weed control. See Kentucky Cooperative Extension Service Leaflet 164, "Control of Annual Weeds in Strawberries."

### 1957 RESULTS

Production in 1957 was lower than desired. There were two principal reasons for this. First, the plants were planted too late, owing to wet soil conditions and, second, drought conditions after planting prevented the development of sufficient plants to make a good fruiting row. Table 1 shows production for the first fruiting year of the 1956 planting.

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Table 1 - Fruit Production, 1957

Variety	Yield, C. P. A.*
Pocahontas	243.00
Tennessee Beauty	240.00
Blakemore	126.63

\* 24-quart crates per acre.

The application of 800 pounds of 0-20-20 per acre on half of each plot did not significantly affect production. This treatment was continued for three years and never gave any significant increase in production. As a result, the old recommendation of late winter applications of 0-20-20 has been dropped except where soil tests show deficiencies of these elements.

#### 1958-1959 RESULTS

The rows of the 1956 planting filled in well during the summer of 1957 and excellent crops resulted in 1958 and 1959. Production for these two years is shown in Table 2.

Table 2. - Fruit Production, 1958-59

Variety	1958 Yield, C. P. A.	1959 Yield, C. P. A.
Pocahontas	566.00	476.00
Blakemore	553.00	374.00
Tennessee Beauty	504.00	440.00

Red stele invaded the planting for the 1960 crop. Several replicates were lost, but the ones that escaped the disease still produced at the 500-crate-per-acre rate.

#### 1960-1961-1962-1963 RESULTS

Tests were conducted during 1960-63 of the 12 varieties planted in 1959. They were planted in early spring and formed excellent fruiting rows that summer.

Production in 1960 ranged from 826 crates per acre for Pocahontas to 265 crates per acre for Red Star. Table 3 shows the production for the top five varieties.

Table 3. - Fruit Production, 1960

Variety	Yield, C. P. A.
Pocahontas	826
Dixiland	739
Early Dawn	647
Blakemore	520
Sure Crop	514

Of the other varieties tested, only Tennessee Beauty could be considered commercially acceptable in Kentucky. Tennessee Beauty ranked 8th with 468 crates per acre. It is a late variety, and droughty conditions lowered its production late in the season.

Table 4 shows the yields for 1961. This was the second fruiting year for the planting.

Table 4. - Fruit Production, 1961

Variety	Yield, C. P. A.
Dixiland	859.00
Blakemore	711.00
Armored	678.00
Red Star	670.00
Pocahontas	597.00
Sure Crop	557.00
Tennessee Beauty	533.00

Table 5 shows the production of the top five varieties for 1962. Red stele was again a factor in this planting which was in its third bearing year. As a result, total yields were down considerably.

Table 5. - Fruit Production, 1962

Variety	Yield	
	All Plots, C. P. A.	Red Stele-free Plots, C. P. A.
Sure Crop	265	416
Tennessee Shipper	232	577
Dixiland	244	454
Blakemore	220	406
Tennessee Beauty	111	406

Table 6 shows the production for a planting of seven varieties considered adapted to Kentucky. This planting was made in 1962 and was typical of plantings made later than recommended. There were not enough plants formed for a production row. They have filled in and prospects are good for a heavy crop in 1964.

Table 6. - Fruit Production, 1963

Variety	Yield, C. P. A.
Blakemore	266.00
Pocahontas	217.00
Sure Crop	196.00
Tennessee Beauty	181.00
Dixiland	163.40
Earlydawn	163.00
Redglow	129.60

A planting of one-fourth acre of Tennessee Beauty in its second fruiting year yielded 697 crates per acre in 1963, even after considerable frost damage on May 4. For the first fruiting year, the yield was 300 crates per acre, owing to too late planting and insufficient

plants formed in the row.

Leaf diseases and fruit rots were generally much less prevalent than at Lexington. It is thought that better air drainage and circulation are responsible for this.

#### CONCLUSIONS

1. Yields of strawberries in experimental trials in the Eden Shale area are the highest yet obtained in Kentucky. They compare favorably with yields and quality obtained in the best strawberry areas of the United States.
2. Standard recommended practices, as given in Ky. Cooperative Extension Service Circular 524-A, are necessary for top production. This is very graphically indicated by low yields following late planting. If possible, fall plowing should be done so planting may be made as early as possible. If planting is delayed, use dormant cold storage plants.
3. Beware of Red stele. Red stele flourishes in heavy, cold soil in wet springs. Be careful to purchase Red stele-free plants. If the disease becomes established, move to new land and use precautions not to transport the disease on tools and equipment. If it is impossible to move the strawberry planting to new land, plant a resistant variety such as Sure Crop.
4. Applications of  $P_2O_5$  and  $K_2O$  in late winter have not increased fruit yields where these two elements were not low (as shown by soil tests).