

# The Evaluation of Apple Color Sports\*

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Considerable interest has been shown in the red color sports of the standard apple varieties. The trend in Pennsylvania as well as in many other apple growing regions in the United States and Canada is to plant the red sports in preference to the standard variety. At present there is some disagreements among growers as to the superiority of the various color sports of apple. It was therefore felt that further evaluation was necessary.

In the spring of 1950, standard trees of Rome Beauty, Stayman and Delicious were each worked to four mutations. The color sports of Rome Beauty were Gallia Beauty, Cox Red Rome, C. & O. 262 Red Rome and Ohio Red Rome. Those of Staymen were Stamared, Scarlet Stayman, C. & O. 201 Red Stayman and Stayman 66. Those of Delicious were Starking, Vance Delicious and Shotwell Delicious. Each group of mutations was grafted on five trees of the respective standard variety, together with the standard variety itself. The limbs chosen for grafting were so selected that no one sport was located in the same position with relation to the sun more than once on the five trees on which it was grafted. By grafting each group of sports on the same tree, a more precise evaluation of the characteristics of each color sport could be made than if they were grown separately on individual trees.

Although not all the sports bore sufficient fruit for evaluation in 1953, there were enough from each of the

Rome Beauty trees with which to make color and storage tests of Rome Beauty and its color mutations. All apples were harvested on the same day and sorted to make three trays of twenty apples each for Rome Beauty and each color sport. One of the trays for each variety was used for color determinations and storage test at 32-35°F, one for a storage test at 40°F, and the third for a similar test at 45°F. The intensity of red skin color was determined by means of the Purdue Color Meter.† Five color readings were taken from each apple by rotating it in the meter. The color data were statistically analyzed and the results summarized in Table 1.

TABLE 1. Color-Ratio Measurements of Rome Beauty and Four of Its Sports. State College, Pa., 1953.

Variety	Average of 5 Readings Each for 20 Apples <sup>1</sup>
Rome Beauty .....	55.5
Gallia Beauty .....	85.4
Cox Red Rome .....	69.4
C & O 262 Red Rome .....	65.8
Ohio Red Rome .....	52.3
LSD: 5% .....	6.47
1% .....	8.57

<sup>1</sup>The higher the value the greater the red color.

Gallia Beauty exhibited the greatest development of red color and Ohio Red Rome, the least. Cox Red Rome appeared slightly redder than C. & O. 262 Red Rome, and Rome Beauty more so than Ohio Red Rome. Storage

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tests indicated a variation in variety susceptibility to a storage disorder similar in appearance to Jonathan Spot. This variation seemed to be related to the intensity of the red skin color of the fruit. Gallia Beauty appeared to be the most susceptible to the disease, and Rome Beauty and Ohio Red Rome, the least. The disorder was first noted on Gallia Beauty after the fruit had been in storage at 45°F for approximately three months. However, the same variety did not show any symptoms of the disease even after four months at 32–35°F. In fact, all

five varieties were in excellent condition after four months at 32–35°F.

To summarize, preliminary observations in 1953 under Pennsylvania conditions showed Gallia Beauty to be a superior red sport of Rome Beauty. The red color of the Ohio Red Rome was not better than that of the standard variety. The fruit of the tested sports were equally good in storage quality at holding temperatures of 32–35°F. However, the redder colored ones seemed more susceptible to a disorder similar to Jonathan Spot at a storage temperature of 45°F.

## Nature of Thornless Blackberry Sports

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Thornless sports of blackberry first became prominent between 1911 and 1918, when the name Cory Thornless Blackberry was trademarked for a thornless sport of Mammoth by W. C. Cory in California; and tip-rooted plants of Cory were sold. In 1929 E. L. Pollard, of Chino, Calif., found that one of six thornless sports of the Young he was observing was very productive. This was introduced in 1930 and patented as Thornless Young. It was widely disseminated as were other productive sports of the Young. In 1931 the writer called attention to a productive thornless sport of the Evergreen blackberry, found and propagated by Philip Steffes, of Oregon, about 1926. This has, since then, steadily replaced the thorny Evergreen in Oregon, Washington and New Jersey. In 1934 the Bauer Thornless Logan was patented and introduced. It was described as differing from Logan in being both earlier and thornless. In 1943 the Bowenberry, apparently identical with Cory, was pat-

ented. Thornless Boysen plants have been sold by the trade, but all seen by the writer are identical with Thornless Young.

Of the four thornless blackberries mentioned, the Thornless Evergreen is now widely grown in New Jersey, Oregon and Washington; several hundred acres of the Thornless Logan are raised in California; few plants of the Cory, or Bowenberry, and very few of the Thornless Young are raised. Except for lack of thorns, the Thornless Evergreen, the Thornless Logan, and the Cory seem identical with and fully as productive as the original thorny varieties. The Thornless Young, however, differs somewhat from the original thorny Young in its leaf shape, and its leaf seems more subject to powdery mildew. In general, the Thornless Young has not been as productive as the thorny parent and is little grown.

A few sterile and nearly sterile thornless sports of the Logan, several Boysen, possibly 100 Young, and a

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