

New York's Food and Life Sciences Bulletin

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'ROYAL EMPIRE'TMAPPLE A Highly Colored Sport of 'Empire'

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Figure 1. Fruit of 'Royal Empire'

INTRODUCTION

'Royal Empire'TM is a color sport of 'Empire' that has been patented as 'Teeple Red Empire' with registration pending under the trademark 'Royal Empire'. This cultivar is exceptional for the greater amount of red color on the surface of the fruit as compared to the original cultivar 'Empire'. In all other respects it is similar to 'Empire'. 'Royal Empire' is a major improvement over the original cultivar because its greater color will permit a higher proportion of the fruit to qualify for the extra fancy grade.

ORIGIN

'Royal Empire' was discovered as a limb sport on an 'Empire' tree in an orchard owned by Teeple Farms in Wolcott, NY. The branch was first noted to bear redder fruits in 1986. Since that time, it has annually borne fruits that were distinctly redder than the fruits on the remainder of the tree. The extent of the sported limb was carefully marked, and buds were taken from the sported branch and budded onto M9 rootstocks. These trees were planted in another orchard in 1988. Figure 1 is a picture of fruit on these trees taken 2 1/2 weeks before harvest in 1990. Figure 2 shows a comparison of 'Royal Empire' with 'Empire' fruit from trees of the same age in an adjacent row in the orchard. This comparison was also two and one half weeks before harvest. The 'Royal Empire' trees propagated from the original sport are more uniform in their appearance and tendency to produce pigmented fruit when compared to 'Empire' trees of the same age and on the same rootstock.

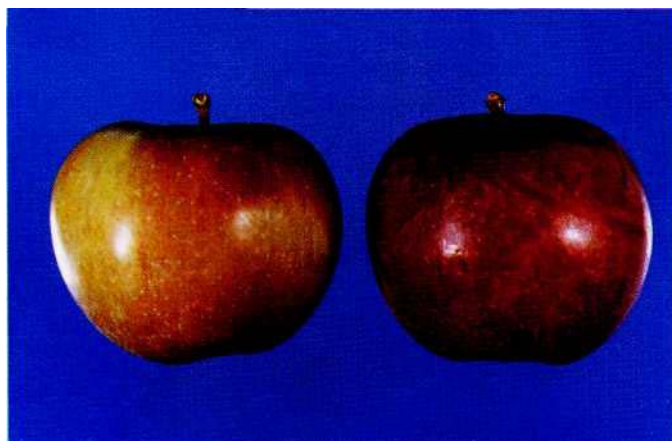


Figure 2. Comparison of 'Royal Empire' with 'Empire'

DESCRIPTION

The fruit of 'Royal Empire' is distinctly redder than fruit from standard 'Empire'. The sport is estimated to have an average of 90% of the surface covered with dark purplish and red stripes where as standard 'Empire' has an average 75% of the surface of similar dark purplish red. This color advantage should permit a higher proportion of fruit to qualify for the extra fancy grade.

No differences have been observed between this new cultivar and the original cultivar 'Empire', except for the amount of red color on the fruit (Way, 1975). Tree shape and bearing habit, time of leafing and bloom, leaf shape and color, flower size and color, pollination requirements, fruit maturity, and size and shape of fruits are identical to 'Empire'.

Dr. Martin Goffinet of the Department of Horticultural Sciences, NYS Agricultural Experiment Station, examined the fruits of 'Royal Empire' histologically and found that the difference in color between 'Empire' and its sport is due to the amount of surface that is colored rather than the quality of the red pigmentation.

Quality indices were compared between the sport and 'Empire', and no significant differences were observed in starch iodine readings, penetrometer values, brix, acid or oxidation values.

AVAILABILITY

Cornell Research Foundation has applied for a plant patent on 'Teeples Red Empire', and has applied for a trademark on the name 'Royal Empire'. Nonexclusive licensing arrangements

with responsible nurseries will be made through Cornell Research Foundation. Trees are available from Wafler Nursery, 10662 Slaght Road, RD #2, Wolcott, NY 14590. In the future, trees will be available from the New York State Fruit Testing Cooperative Association, Hedrick Hall, Geneva, NY 14456, as well as from commercial nurseries.

LITERATURE CITED

Way, R.D. 1975. Empire-A high quality dessert apple. New York's Food and Life Sciences Bulletin #53.

ACKNOWLEDGEMENTS

The Teeples decided to release 'Royal Empire' in cooperation with Cornell University because they wanted to recognize the past efforts of our apple breeding program. They felt that the Geneva program has benefitted the New York apple industry through its release of 'Empire' and 'Jonagold' yet the program had not received financial compensation because these cultivars had not been patented. Royalty payments on 'Royal Empire' will benefit the apple breeding program. The researchers at Geneva would like to acknowledge the generosity of the Teeples in arranging this dual release, and thank them for their support of our work.

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