DELICIOUS, GOLDEN DELICIOUS, JONATHAN,
ROME BEAUTY, STAYMAN WINESAP AND THEIR MUTATIONS
AND CLOSELY RELATED CULTIVARS

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Horticulture Mimeograph Series No. 356©April 1, 1970
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The Delicious cultivar apparently is subject to developing many mutations. A number of these are now offered by nurseries throughout the United States. Certain of these mutations were observed in widely separated parts of the country and are presumably different, a number cannot be easily distinguished from each other. The Ohio Agricultural Research and Development Center has collected the major ones from various sources which are believed to be reliable. They have been propagated on Malling IX and Malling VII rootstocks.

These cultivars may be divided into two groups as follows:

<table>
<thead>
<tr>
<th>Spur Type</th>
<th>Non-Spur Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earlistripe</td>
<td>Chelan Red</td>
</tr>
<tr>
<td>Hardispur</td>
<td>Earli-Red</td>
</tr>
<tr>
<td>Miller Sturdeespur</td>
<td>Gardner</td>
</tr>
<tr>
<td>Redspur</td>
<td>Hi-Early</td>
</tr>
<tr>
<td>Starkrimson</td>
<td>Houser</td>
</tr>
<tr>
<td>Wellspur</td>
<td>Imperial Red</td>
</tr>
<tr>
<td></td>
<td>Jardine</td>
</tr>
<tr>
<td></td>
<td>Lalla</td>
</tr>
<tr>
<td></td>
<td>Myrtle</td>
</tr>
<tr>
<td></td>
<td>Nickell</td>
</tr>
<tr>
<td></td>
<td>Red King</td>
</tr>
<tr>
<td></td>
<td>Red Prince</td>
</tr>
<tr>
<td></td>
<td>Red Queen</td>
</tr>
<tr>
<td></td>
<td>Rypczynski</td>
</tr>
<tr>
<td></td>
<td>(New Starking)</td>
</tr>
<tr>
<td></td>
<td>Shotwell Delicious</td>
</tr>
<tr>
<td></td>
<td>Skyline Supreme</td>
</tr>
<tr>
<td></td>
<td>Starking</td>
</tr>
<tr>
<td></td>
<td>Starkspur Red</td>
</tr>
<tr>
<td></td>
<td>Topred</td>
</tr>
<tr>
<td></td>
<td>Vance</td>
</tr>
</tbody>
</table>
With respect to over-color, Delicious and its mutations vary in:

1) Earliness of over-color development
2) Type of color development - Striping or solid
3) Intensity of over-color at maturity
4) Development of protuberances at basin end

Mature fruits of several of these mutations cannot be distinguished in view of their similar shape and color development.

NOTE: There is no recognized cultivar known as Red Delicious or Double Red Delicious. These are usually utilized to indicate that they are some mutation other than Delicious. They have been so termed only for marketing purposes and improved consumer acceptance.

Below a brief description is given for each cultivar as well as at least one nursery from which the cultivar may be purchased (if it is "in the trade").

**Chelan Red**

This mutation presumably originated from Starking at Mason, Washington. The over-color develops very early and, in consequence, the final solid red color is quite intense. From present evidence the cultivar possesses an outstanding dark carmine and in this respect is possibly surpassed only by Top-Red. However, under practical conditions Chelan Red cannot be easily distinguished from other intense over-color cultivars.

As yet no nursery is known to offer this mutation for sale. Some question has arisen relative to the size of its fruit.

**Earli Red**

This cultivar originated as a limb mutation at Starking at Pateros, Washington. It has not been planted at the Research Center at Wooster.
It is sold by Heath Nursery, Pateros, Washington.

**Earlistripe**

This cultivar is a striped spur-type discovered at Brewster, Washington. The over-color is initiated as a striped condition and at maturity is still slightly striped. This cultivar is offered for sale at the Hilltop Orchards and Nurseries, Hartford, Michigan and the May Nursery Company, Yakima, Washington under US Patent No. 2606. The mutation has not been established at the Research Center.

**Gardner**

This mutation shows an early blushed over-color which develops solid at maturity. The fruits have an attractive red similar to a very well colored Richared.

The cultivar is offered for sale by the New York State Fruit Testing Cooperative Association, Geneva, New York.

**Hi-Early**

This mutation is reported to be a limb sport of Starking, originating at Pateros, Washington. The fruit appears similar to Starking and cannot be readily distinguished from very well colored fruits of that cultivar. Stripes are noticeable even on the side with the darkest carmine. This mutation is available for sale at the Heath Nursery, Pateros, Washington.

**Houser**

Two selections of the so-called Houser mutation. The fruits of the particular strain grown at the Research Center at Wooster develop a dark solid
red carmine over the entire surface with no trace of striping. This particular mutation certainly falls in the class of those with the dark, more intense carmine. The cultivar is being offered for sale by the Yakima Nursery Company, Yakima, Washington.

**Imperial Red**

Imperial Red develops early a light striping over-color but at maturity it is solid red. The over-color is possibly slightly less dark and somewhat more bright upon maturity than other cultivars which show early color development. Imperial Red is an excellent example of the non-spur type.

It is sold by the May Nursery Company, Yakima, Washington as US Plant Patent No. 1805.

**Jardine**

Jardine presumably like Red Prince is an early coloring mutation of Delicious (regular) originating near Oliver, British Columbia. It develops color early and it shows faint stripes on the fruits at maturity. It cannot be readily distinguished from a very well colored Starking. As yet it has not been offered for sale by any nursery.

**Lalla**

This mutation has a bright red striped over-color. It shows no superiority over Delicious and is not recommended for planting at any location.

**Miller Sturdeespur**

This mutation develops its early color as a blush and the mature fruit shows a deep solid carmine. The color may become quite intense. This muta-
tion is a spur-type and is patented under US No. 2433. It is offered for sale by Hilltop Orchards and Nurseries, Hartford, Michigan.

Myrtle

Myrtle was discovered in 1956 in West Virginia in a block of trees purchased as Richared. The fruit color shows no evidence of striping. Under favorable environmental conditions the fruits cannot be distinguished from several other Delicious mutations. Its over-color at maturity is quite intense.

As far as is known no nursery offers this mutation for sale.

Nickell

This mutation originated on a Starking tree at Pateros, Washington. The early color development is slightly striped but with full maturity, the fruits show only a faint trace of striping. This mutation has not yet been offered for sale by any nursery.

Red King

Red King originated at Riverside, Washington as a mutation and was discovered on a Starking tree in 1945. The fruit seems to resemble Starking and cannot be distinguished from a very well colored specimen of that cultivar. A striped condition is evident throughout the period of color development.

Red King is now in commercial production is offered for sale by the Van Wells Nursery, Wenatchee, Washington under US Patent No. 1411.

Van Well Nursery offers for sale a "Red-King Oregon Red Spur" cultivar with US Patent Pending. This is reported to be a mutation with excellent finish and appearance.
Red Prince

This cultivar is being grown on Malling IX and VII rootstocks at the Research Center at Wooster and at the Eastern Branch at Canfield. The fruit color has not developed as intense as is the case with cultivars such as Chelan Red, Imperial Red and the spur-mutations such as Starkrimson and Redspur.

The color develops early but the fruit surface shows a streaked effect. At maturity on the lighter colored side some streaking has been evident and this is also noticeable on the darker colored side exposed directly to light.

The cultivar is sold as US Plant Patent No. 2285 by the Hilltop Orchards and Nurseries, Hartford, Michigan.

Red Queen

Red Queen originated as a limb sport on Starking at Paw Paw, West Virginia. It is reported that the fruit "appears identical to Starking except in time and intensity of color formation." A faint striping appears over the entire surface in well-colored fruits at the Research Center at Wooster. The dark over-color has not been as intense as that of several other early color mutations of Delicious.

Red Queen is now available at the Hilltop Orchards and Nurseries, Hartford, Michigan. As yet no patent has been obtained for this cultivar.

Richared

Richared is a mutation of Delicious, the fruits of which develop a more satisfactory over-color. The color tends to develop somewhat earlier than that of Delicious and at maturity is usually solid red. The entire surface may be colored under favorable environmental conditions. This cultivar has,
since its introduction, been obviously more superior to Delicious.

Royal Red

This mutation originated as a limb sport on Richared in an orchard owned and operated by the C and O Nursery, Wenatchee, Washington. Although the cultivar is presumably a mutation of Richared, the fruits may show some streaking at maturity. The over-color develops earlier than Richared and at maturity also shows a more intense red. This cultivar is patented as US No. 1278 and is offered for sale by the C and O Nursery, Wenatchee, Washington.

Ryan Red

Ryan Red is a mutation found in the orchard of James Ryan, Wapato, Washington. The cultivar presumably originated as a limb sport of Starking. However, the fruits are characterized by developing a solid over-color at maturity. It has been considered one of the most desirable mutations in the Delicious group. It is sold by the Carlton Nursery Company, Yakima, Washington.

Rypczynski (New Starking)

This strain originated as a limb mutation in a Starking tree. However, a very well colored Starking fruit is difficult to distinguish from one of the Rypczynski strain. Both show the tendency toward streaking and mottling at the basin end. It is reported to develop the over-color earlier than Starking and may at maturity, therefore, show a more intense over-color. This is now the new "Super Starking Delicious" Frank Strain, US Patent No. 2440 sold by Stark Bros. Nurseries, Louisiana, Missouri.
Shotwell Delicious

Shotwell Delicious is a mutation of Delicious which shows much improvement in color over that cultivar. Actually it has always been difficult to distinguish between Shotwell Delicious, Starking and Richared. It was not planted as extensively as either of these two cultivars.

Skyline Supreme

This mutation originated in an orchard at Hendersonville, North Carolina. The planting contained both Starking and Richared. The color is initiated early as a distinct blush and the fruit at maturity have a solid dark red carmine. For an over-all blushed fruit, fairly intense in color, Skyline Supreme seems to be similar to other solid red mutations.

The cultivar is offered for sale by Bountiful Ridge Nurseries under US Patent No.

This nursery now offers a spur-type mutation of Skyline Supreme called Skyspur.

Starking (Old Mutation)

Starking developed as a mutation of Delicious and the fruits are more superior to that cultivar in the extent of surface covered and the intensity of the over-color.

A slight striping of the over-color is present which may be evident even on very well colored fruits. This cultivar was sold for many years by the Stark Bros. Nurseries but now has been suspended by the Rypczynski strain.
Starkrimson

This mutation was originally known as the Bisbee strain and was discovered at Hood River, Oregon. This spur-type cultivar exhibits early color development as a distinct blush and at maturity the dark intense over-color is practically a solid carmine. It is offered for sale by the Stark Bros. Nurseries and Orchards, Louisiana, Missouri under US Plant Patent No. 1565.

Starkspur Red

This mutation is known as the Wood strain and is sold under US Patent No. 1930.

This cultivar developed as a "tree mutation" in an orchard owned by Walter Wood, Winthrop, Washington. It is a spur-type. Color development begins as a striping but it finally becomes nearly solid at maturity. Stark Bros. Nurseries and Orchards of Louisiana, Missouri lists this mutation in its catalog.

Topred

Topred is reported to be a mutation of Shotwell Delicious discovered in 1956 and originating near Tonasket, Washington. The fruit presumably shows an early striping effect but upon maturity the overall color extending over the entire surface is nearly solid-red and usually outstandingly intense. The C and O Nursery reports that it is the "earliest coloring Delicious sport" with "full color by maturity" permitting "picking first." The cultivar is sold by the C and O Nursery under US Plant Patent No. 1916.

Vance

The Vance mutation originated in 1958 on a Starking tree in two Delicious rows. The color develops early as almost a solid blush and at maturity the
dark carmine shows only a trace of striping. This mutation is offered for sale by the New York State Fruit Testing Cooperative Association, Geneva, New York.

Wellspur (formerly Azwell)

This mutation was found as a replant in a block of Starking in the Azwell Orchard, Azwell, Washington. The color develops early as a solid blush and the mature fruits show no streaking. The color is fairly intense. This mutation is one of the spur-types similar to Redspur and Starkrimson. One of the nurseries offering this mutation for sale is the Van Well Nursery, Wenatchee, Washington.
GOLDEN DELICIOUS (YELLOW DELICIOUS)
AND ITS MUTATIONS AND RELATED CULTIVARS

The Golden Delicious cultivar is well known to all producers. Its high
dessert quality and attractive appearance have made it one of the outstanding
cultivars for commercial planting. It has a major limitation which is the
tendency for the fruits to show surface russetting. This disorder obviously
may lead to some fruit wilting, provided the relative humidity is not kept
at a high level.

The mutations and related cultivars are listed below. Although a consider­
dable number of bud mutations have been reported it is probable that several
may be identical.

Goldspur (Sundale spur-type Golden Delicious)

This mutation was discovered at Sundale Orchards near Roosevelt, Washing­
ton. It is sold under US Plant Patent No. 2334 by Van Well Nursery, Wenatchee,
and Nurseries, Hartford, Michigan also lists it as Sundale Sturdeespur Golden
Delicious.

This mutation is of the spur-type. As far as any reliable evidence is
available the fruit of this cultivar does not differ from that of Golden Deli­
cious (Yellow Delicious).

Nugget

This is a spur-type yellow or Golden Delicious offered for sale recently
by Bountiful Ridge Nurseries, Princess Anne, Maryland. The origin is not given.
Only recently were trees planted at the Research Center and no fruits are available.
Primegold

This is a new Golden Delicious type reported by Hilltop Orchards and Nurseries, Hartford, Michigan to mature 10 days earlier than Golden Delicious. It is also reported to have the Delicious shape and be russet-free.

This cultivar is apparently a seedling of Golden Delicious and not a mutation. It is reported to be a satisfactory pollinating cultivar for Golden Delicious.

US Plant Patent No. 2806 has been issued for this cultivar.

Smoother

This is a new mutation of Golden Delicious sold by Hilltop Orchards and Nurseries, Hartford, Michigan under US Patent No. 2803. It was obtained in Evans City, Pennsylvania. The trees have not yet fruited at the Research Center. The surface of the fruit is reported to be more smooth and waxy than that of Golden Delicious, as well as russet-free.

Starkspur Golden Delicious

This mutation is sold by the Stark Bros. Nurseries and Orchards Company, Louisiana, Missouri under US Patent No. 2024.

From available evidence other than being of the spur-type, the fruits do not differ from those of Golden Delicious.

Sungold

This cultivar resembles Golden Delicious in shape but fruits harvested in Ohio have been smaller. They show a more yellow color with irregular pink flecks scattered over the surface. The dots are rather pronounced. The fruits available have been obtained from very young trees propagated on Malling IX or
Malling 26 rootstocks. The fruits are reported to be russet-free.

This cultivar was found in New Jersey. It is sold by the Bountiful Ridge Nurseries, Princess Anne, Maryland; Clyde Nursery Company, Clyde, Ohio and the Adams County Nursery and Fruit Farms, Aspers, Pennsylvania.
JONATHAN AND ITS MUTATIONS

AND CLOSE-RELATED CULTIVARS

Although Jonathan is a reasonably well-colored cultivar, several improved color mutations have been reported to be in existence.

Among the mutations or related cultivars now listed by nurseries are:

Anderson Jonathan

This mutation of Jonathan is reported to develop a "fine bright red color" and to reach "full color a few days ahead of Double Red Jonathan."

It is offered for sale by the Hilltop Orchards and Nurseries, Hartford, Michigan.

Double Red Jonathan (Valnur trademark registered)

This mutation is reported to be an early coloring mutation of Jonathan with its over-color developing two weeks ahead of Jonathan. The entire surface is also reported to become solid red. This mutation has not fruited at Wooster. It is available at the Van Well Nursery, Wenatchee, Washington.

Double Red Jonathan

Several nurseries offer mutations of Jonathan which are reported to produce earlier coloring fruits becoming eventually completely over­spread with the Jonathan type carmine. Undoubtedly one of the superior colored mutations should be planted rather than the ordinary Jonathan
which is not always as well colored as might be desired.

Bountiful Ridge Nurseries, Princess Anne, Maryland offer one of these types for sale.

**Jonadel**

This cultivar originated from crossing Jonathan with Delicious and was named in Iowa in 1958. At the Research Center at Wooster it varies considerably from Jonathan in that the fruits are larger, the over-color is less intense and the under-color a yellow-gold. The flesh is coarser and is not as tart as Jonathan. The flavor is definitely inferior to Jonathan. It is reported not to be subject to Jonathan Spot.

The New York State Fruit Testing Cooperative Association offers this cultivar for sale.

**Jonagold**

This cultivar offered by the New York State Fruit Testing Cooperative Association, Geneva, New York has not fruited at Wooster. It is reported to develop a very attractive striped over-color over a yellow ground color. The cultivar is a triploid and cannot be used as a pollinizing cultivar. The cultivar is reported to have a high dessert quality and to keep late in refrigerated storage.

**Jonagram**

Jonagram is a very late blooming cultivar developed at the Missouri Agricultural Experiment Station as a cross between Ingram and Jonathan. The fruits are considerably larger than Jonathan and not as well colored. It develops a dark striped carmine on one shade while the under-color is an
attractive yellow. The dessert quality is only fair. Its value is its very late blooming season, 5 days later than Rome Beauty.

**Jonalicious**

This cultivar is presumably a cross between Delicious and Jonathan and is offered for sale by the Stark Bros. Nurseries and Orchards Company, Louisiana, Missouri. It has been patented under US No. 1777.

The fruits are reported to be larger than those of Jonathan and possessing a flavor intermediate between Jonathan and Delicious. Fruits of this cultivar are not available at the Research Center at Wooster.

**Jon-A-Red (Uecker Strain)**

This cultivar is reported to bear earlier than the ordinary Jonathan. As grown at the Research Center at Wooster, it closely resembles Jonathan and seems to be similar in size, shape and over-color. The flavor is similar to Jonathan. The cultivar is sold by the Stark Bros. Nurseries and Orchards Company, Louisiana, Missouri.

**Jonnee**

Jonnee is reported by the Hilltop Orchards and Nurseries Company, Hartford, Michigan as an earlier coloring Jonathan mutation. The color is reported to develop first as a striped condition but later at maturity the over-all color is almost solid-red. A patent has been applied for by Hilltop Orchards and Nurseries Company, Hartford, Michigan.

**Nured Jonathan**

Nured Jonathan was discovered as a bud mutation of Blackjon in the C and O Nursery Orchards, Wenatchee, Washington. This mutation is reported to color
earlier than Standard Jonathan, otherwise the fruit and tree characteristics are similar to Jonathan.

Nured has been patented as US No. 2650 and is available at the C and O Nursery, Wenatchee, Washington.
Red Rome Beauty and Gallia Beauty for some years were the principal cultivars showing over-color improvement superior to Rome Beauty. These have different origins. Red Rome was presumably a mutation while the history of the origin of Gallia Beauty indicates it is a seedling. Whether this is true possibly cannot be verified to a satisfactory extent. Regardless of their origins, both are superior and take preference over Rome Beauty.

Barkley Red Rome

Barkley Red Rome is a mutation of Rome Beauty which has been patented under US No. 1470. Its over-color is striped at first but becomes highly solid red over the entire surface. This mutation is available from the Van Well Nursery, Wenatchee, Washington.

Gallia Beauty

The origin of Gallia Beauty indicates that it is a seedling of Rome Beauty although appearance, shape and flavor of the fruit would seem to indicate it is a mutation.

In Ohio its over-color is superior to Rome Beauty and has at least been equally as good or superior to that of Seeando Red Rome 262. This cultivar is available at the Bountiful Ridge Nurseries, Princess Anne, Maryland.

Nured Rome

This mutation is reported to be a "select strain" of Seeando Red Rome No. 262. It was originally discovered by the C and O Nursery, Wenatchee, Washington.
Seeando Red Rome No. 262 (C and O Red Rome 262)

This mutation of Rome Beauty has been widely planted in various areas where Rome Beauty is adapted. It is definitely an improvement over Rome Beauty in the extent of over-color development. Otherwise, it is presumably identical.
Several mutations of Stayman Winesap have been available for some time. They apparently are less susceptible to fruit cracking and presumably should be selected for planting in preference to Stayman Winesap.

**Blaxtayman**

Blaxtayman was one of the earliest mutations of Stayman Winesap. It develops a darker over-color extending over nearly the entire surface of the fruit. Undoubtedly Blaxtayman is an improvement over Stayman Winesap with respect to over-color and reduced fruit cracking.

**Double Red Stayman**

Presumably this is a mutation of Stayman Winesap but its origin is undiscovered. It is reported not to develop the rather dark, dull appearance of some mutations of Stayman Winesap.

This strain is offered by Hilltop Orchards and Nurseries, Hartford, Michigan.

**Early Red Stayman (Neipling's)**

This mutation is reported to develop over-color "10 to 20 days" ahead of Stayman Winesap.

It is offered for sale by Bountiful Ridge Nurseries, Princess Anne, Maryland.
Imperial Blaxtayman No. 201 (Nured Stayman)

These mutations are nearly, if not identical and are presumed to be a slight improvement over Blaxtayman in developing a brighter and somewhat more solid over-color extending over the entire surface of the fruits.

Nured Stayman is offered for sale by the C and O Nursery, Wenatchee, Washington.

Red Stayman

This mutation is reported to have originated in the Wenatchee area in Washington. The fruits are reported to develop red over-color ahead of regular Stayman Winesap.

Van Well Nursery, Wenatchee, Washington lists this mutation for sale.

Scarlet Staymared - Dickey Strain

This mutation of Stayman Winesap appears to develop somewhat brighter over-color than Blaxtayman. It is sold by Stark Bros. Nurseries and Orchards Company, Louisiana, Missouri.

Staymared, originally sold by Stark Bros. Nurseries, is no longer available.
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