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SERIES I. EVALUATION OF FOREIGN FRUITS AND NUTS

NO. 11. APPLES

EVALUATION OF EARLY RIPENING APPLE INTRODUCTIONS

by

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INTRODUCTION

The U. S. Plant Introduction Station, Glenn Dale, Maryland in its role as the principal quarantine center of the U. S. Department of Agriculture, Crops Research Division, serves as a holding area for newly introduced plant imports, including pome fruits, until such time as they may be released by the U. S. Plant Quarantine Division. Distributions are then made to interested Federal and State Experiment Station plant breeders and pome fruit specialists. In addition to this service, the station maintains an orchard collection of pome fruit variety introductions which present a unique opportunity for the investigation of potentially valuable characters, including early ripening. There exists a definite need for better quality early maturing varieties to supply the fresh fruit summer market. The production of early apples has suffered for a number of years from competition from other fruits and vegetables because of poor quality among the early ripening types. Intensive efforts toward earlier peach varieties have proven gratifying in recent years; greater emphasis toward the same goal for new apple varieties would seem equally meritorious. Early apples of good quality would be of special interest to southern growers who would find ready market acceptance, as has been the experience of other fruits ahead of their season. The objective of this paper is to present new sources of early ripening apples that may be utilized in breeding projects which have earliness and high quality as their goals.

The current collection of foreign and domestic apples growing at the station includes slightly more than 800 named varieties and unnamed sorts of fruiting age. As part of the program of evaluating plant introduction materials, the annual recording of various phenological characteristics, including fruit descriptions, has been an important phase of the work. This paper presents information on 63 early-ripening apples tested at Glenn Dale for varying lengths of time up to 21 years, during which time evaluation records were made by F. C. Bradford, W. E. Whitehouse,

1/ Horticulturist in charge
H. F. Winters and the author. With few exceptions fruit characteristics of all of the varieties presented have been described by the author. In many cases at least three of the above investigators have either separately or cooperatively described the same variety.

PROCEDURE

The fruit descriptions have been abbreviated from the original field records in an effort to reduce the bulk of the publication. Information is presented only for those characteristics considered of major importance. The more commonly grown varieties, 'Dutchess', 'Yellow Transparent', and 'Red Astrakan' are included as standards, which may be used for comparative purposes with the lesser known introduced varieties. Variety descriptions are arranged alphabetically according to variety name and the varieties are listed in Tables II, III, and IV in sequence of harvest date. Data are presented under a number of separate headings. Explanations of how these data were developed are as follows:

Variety Name

The variety names are used as they appear in the Plant Exploration and Introduction Inventory except as corrected, with no attempt made to anglicize the names of the varieties of foreign origin. Where possible, fruit descriptions as taken at Glenn Dale have been compared with those given in various reference works, but no guarantee is made for the authenticity of the introduced varieties.

Synonyms

The synonyms used have been taken from the reference works cited, from correspondence, and from data obtained from the source or originator. Where there is reasonable doubt as to the accuracy of the synonym, it is included, but followed by a question mark. Where a synonym has been used which appears incorrect this is so indicated.

Origin

The origin of a variety or seedling has been ascertained as far as possible from the literature cited, personal correspondence, station records, catalogs and other printed matter. As may be noted there are a number of varieties for which this information is not available.

Source

Information regarding the source of the trees or budwood as imported from abroad or obtained within this country was taken directly from the Plant Exploration and Introduction Inventory. Reference is made to the plant explorer and where he collected the material; or to the precise individual, institution or nursery from which the introduction was received.
Literature

The literature cited presents descriptive and/or other data about the variety in question. No attempt was made toward an exhaustive review of the literature. Considerable data regarding early citations were obtained from notes made by F. C. Bradford, former horticulturist in charge of this station.

Date of Full Bloom

In general, trees were considered to have reached full bloom when approximately 75 percent of the blossoms had opened. Date of full bloom represents the average for this occurrence for the years 1961 and 1962.

Fruit Characteristics

Fruit descriptions have been based on a minimum of six fruits selected as typical of the majority of the crop and include those taken during the years 1941, 1944, 1949, 1952, 1955, 1957, 1959, 1960 and 1961. The descriptions presented represent a summation and averaging of the evaluation work of all four investigators previously mentioned. It should be kept in mind that evaluations were made in terms of the possible value of the imports to apple breeding programs and not for commercial acceptance in their present form. As may be seen from the descriptions, many of the fruits do not compare favorably with established commercial varieties.

Size

Size measurements were taken with a Vernier caliper and represent the average of the diameters and lengths of at least six fruits considered as typical. Because a shortage of labor prevented a systematic thinning of orchard fruits, size measurements are generally somewhat smaller than those observed in the literature for these same varieties.

Shape

The terms used here for describing shape are principally the same as those of Hedrick (24). Where there is considerable variability in this character it is so indicated, otherwise shape may be assumed to be relatively uniform.

Color

Color data consists of the percentage of the fruit surface showing over-color, its pattern or type, and the ground-color.
Flesh

In summarizing the descriptions of the four individuals previously mentioned, the greatest variability existed in the characteristics of the flesh and the related determination of quality. Such characteristics as texture, juiciness and sweetness or acidity are very prone to subjectivity. However, because observations were made over a period of years, seasonal variations due to environmental differences may also have played an important part. This was particularly evident in several cases where different trees of the same introductions growing under different soil and moisture conditions were noted as being dissimilar in respect to flesh characteristics and quality.

Quality

Variations in the assessment of quality were largely traced to subjective bias toward a basically tender fleshed sweet fruit or a firm, tart one. An effort was made to compare the overall pattern of each evaluator with that of the others in order to establish at least to some degree the preferential bias of each, and to use this information to standardize the summations for each character described. Even so, it should be recognized that quality ratings represent the judgment of several individuals and no "taste panel" tests were performed.

Harvest Date

The harvest date as presented with each fruit description represents the average date for this occurrence during the years the fruits were observed at Glenn Dale between 1941 and 1961. The precise dates for each year of observation are listed in Table II and the range of ripening for several seasons is given in Table III. The average dates of full bloom and of harvest are presented in Table IV together with the average length of the growing season.

Although the data, especially for the earlier years, is not complete, there is enough overlapping of information to allow reasonable comparisons between all varieties. Some care should be taken in interpreting the data, but it is felt no serious errors will develop unless very detailed conclusions are drawn. In a number of cases the harvest period as observed at Glenn Dale is at variance with that included in the literature of several of the European and Canadian sources. Howlett (28), in making comparisons of harvesting dates of pear introductions, found European records almost valueless. This was considered to be true because of the European tendency to use the season of use rather than precise harvesting dates. This may have some bearing in the case of apples also, but probably different climatic factors experienced at Glenn Dale play as important a role toward earlier ripening.

Harvest dates were based on the ease of fruit removal from the branch, the color and maturity of the seeds, color of the skin, and more generally when the fruit was about ready to eat out of hand. The first sign of fruit drop was also used as a rough criteria for the degree of ripeness.
General Notes

Included along with the fruit descriptions is information pertaining to particular traits or observations considered pertinent, but not characterized under fruit description headings. These observations were not made systematically, as were the descriptions, and thus cannot be considered conclusive for all varieties. A number of the comments included here may be peculiar to local conditions at Glenn Dale and therefore not truly representative of the variety when grown in other areas.

Fire Blight Index

Considerable variation was noted in the degree of attack by the Fire Blight organism, *Erwinia amylovora* (Burr.) Winslow et al., among the various introductions. Although this disease is not considered as serious on apples as it is on pears and is rarely fatal to established apple trees, damage has been so severe among some introductions as to reduce fruit production to nil for one or more seasons.

A control program for fire blight, incorporating the use of Agrimycin, is being followed for nursery areas and mature pears. In the apple orchards the disease has been allowed to spread naturally, the only control consisting of the removal of cankers and severely damaged limbs toward the end of each season. It has been noted that during the last three years outbreaks have been widespread, being present in all parts of the various orchard blocks. In many cases trees with no visible signs of blight have been observed growing adjacent or between some of the most severely infected ones.

Observations were made during the years 1959, 1960 and 1961. For ease in recording and tabulation, fire blight infection was based on a numerical scale ranging from 0 to 5 in ascending order of symptom expression. The approximate percentages of spurs and branches showing symptoms were arbitrarily assigned as follows:

0  no visible signs of Fire Blight
1  less than 5 percent of tree showing disease symptoms
2  5 to 15 percent of tree showing disease symptoms
3  16 to 25 percent of tree showing disease symptoms
4  26 to 49 percent of tree showing disease symptoms
5  50 percent or more of tree showing disease symptoms

The indices presented with the fruit descriptions represent the averages of three years of observations for 61 of the 63 introductions described. Although the original observations were expressed in whole number categories, the averages in most cases result in fractions between them.

Since actual inoculations with the pathogen were not made, it is very probable that some trees which showed no symptoms during the three years may be escapes. Therefore, the data presented is only an indication of possible resistance and by no means actual proof thereof.
In Table I the average temperature and total precipitation for the months of June, July and August are shown for the nine years fruit descriptions were made. Since the fruiting records for the years 1941, 1944, 1949 and 1952 were sporadic, no effort was made to correlate these climatic conditions with time of harvest. In 1955 temperatures were about 4 degrees below normal in June and 4 to 5 degrees above normal during July and August. Precipitation was slightly (0.63 in.) above normal for June, 2.86 inches below normal for July and 11.32 inches above normal for August. The latter month was the wettest on record at the station, primarily the result of hurricane "Connie" which dumped 9.98 inches of rain on Glenn Dale during the three days, August 12, 13 and 14. Although some of the earliest ripening varieties started a little late, as shown in Table II, the harvest season on the whole was somewhat earlier than 1957, 1959, 1960 and 1961. In rating the earliest year to ripen for each variety taken separately, 42 percent of the harvest dates taken in 1955 were earliest compared to 13 percent for 1957, 24 percent for 1959, 35 percent for 1960 and 29 percent for 1961. The unusually high temperatures during July when most of the varieties under study ripen would appear to be responsible for the earliness encountered during this year.

In 1957 temperatures were 2.4 degrees above normal in June and slightly below normal in July and August. Precipitation was about 2 inches above normal in June and about 2.5 and 2 inches below normal for July and August respectively. July was very similar in its dryness to July 1955. With the limited number of observations available during this year it is difficult to establish a seasonal pattern of ripening. Despite the above normal temperatures in June, ripening started off slowly. Of the observations made on early ripening varieties during this year, all except one (August 13) occurred within a period of eight days. If any trend can be established, it would appear that ripening in general was 7 to 10 days later than in 1959.

In 1959 temperatures were normal during June and July and 2.5 degrees above normal in August. Precipitation was slightly above normal in June, more than 4 inches above in July and almost an inch below normal in August. Ripening in 1959, when compared to 1960 and 1961 started off as early or perhaps somewhat earlier than the other two years. As the season progressed, varieties were generally later so that the overall pattern was that of a season which tended toward greater lateness than 1960 and 1961.

In 1960 temperatures were about 1.5 and 2.5 degrees below normal during June and July respectively and 2 degrees above normal in August. Precipitation was 3.33 inches below normal in June, the driest month of those recorded, while it was about 1.5 and 3 inches above normal for July and August respectively. Ripening during the early part of the season was much the same as in 1959, but as the season progressed, the varieties were somewhat earlier than the whole than in 1959 and 1961. The season was generally somewhat more advanced than the others under study, being succeeded only by 1955 in this respect.
In 1961 temperatures were 1.5 degrees below normal for June and less than a degree below normal for the other two months. Precipitation was very close to normal in June and somewhat less than 1.5 inches below normal in July and August. The season started somewhat later than in 1959 and 1960 for several of the very early varieties, then tended to catch up, despite lower temperatures and precipitation, and followed a similar pattern to 1959 and 1960. As the season advanced into early August, ripening again became somewhat later than in 1959 and 1960.

Although some differences have been pointed out between the last three years studied, the seasons were rather similar, 1961 being, on the whole, intermediate between the somewhat later 1959 and earlier 1960. The length of the season from the first variety to ripen, 'Kizil alma', to the last, 'Dr. Clifford', was 44 days in 1959, 43 days in 1960 and 47 days in 1961; certainly of little significant difference.

The range of ripening as illustrated in Table III shows the seasonal variation for each variety as it occurs over four years of observation in most cases. Where observations are for shorter or longer periods this is so indicated. The data reveals a comparison of the stability of individual varieties in ripening their fruits at approximately the same calendar date each year. Since the exact same years of observed ripening are not represented in all cases, only the more gross differences should be considered. Among the varieties listed, the general earliness or lateness of a variety did not appear to have as much influence on the degree of fluctuation of exact ripening dates as did apparent sensitivity to seasonal changes peculiar to individual varieties. Thus, there was no greater seasonal variation in ripening dates among the very early varieties than among the later ripening types. Because the varieties listed represent only the 63 earliest ripening individuals, selected from over 800 presently under observation at Glenn Dale, only a segment of the full ripening season is represented.

The average date of full bloom and of harvest together with the average length of growing season is shown in Table IV. The earliness of full bloom and the earliness of ripening are only very roughly correlated for most varieties. The two earliest ripening varieties, 'Kizil alma' and 'Early Crimson' are also the earliest to bloom. Likewise, 'Drap D'or Guemene', only two days short of the latest ripening variety listed is the latest variety to bloom. Some of the other varieties also show similar correlations, but on the whole the time of occurrence of one characteristic is not too indicative of the other. The length of time from full bloom of the earliest to the latest blooming varieties listed extends from April 3 for 'Early Crimson' to May 6 for 'Drap D'or Guemene', a period of 33 days; the period between date ripe for these same two varieties is June 28 to August 5, or 38 days. The total length of the ripening season is 43 days, 10 days longer than the corresponding blooming season. The length of time from full bloom to harvest ranges from 72 days for 'Kizil alma' to 105 days for 'Dr. Clifford'. The latter variety, although the latest ripening sort listed, is an early blooming clone in
comparison to the others in the group. An interesting observation is that the difference between the shortest, 72 days, and longest, 105 days, of the fruit development periods is 33 days, the same as the length of the blooming period.

The three-year averages of the degree of Fire Blight symptoms, as previously mentioned, are included with the fruit descriptions. Below, the varieties are divided into seven groups according to the degree of symptom expression.

<table>
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<tr>
<th>Fire Blight Symptom Indices*</th>
<th>0</th>
<th>0.1-0.4</th>
<th>0.5-0.9</th>
<th>1.0-1.9</th>
<th>2.0-2.9</th>
<th>3.0-3.9</th>
<th>4.0-5</th>
<th>Undetermined</th>
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<td>9</td>
<td>12</td>
<td>26</td>
<td>7</td>
<td>3</td>
<td>0</td>
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<tr>
<td>Percent of total</td>
<td>6.4</td>
<td>14.3</td>
<td>19.0</td>
<td>41.3</td>
<td>11.1</td>
<td>4.8</td>
<td>0</td>
<td>3.1</td>
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* Indices are based on a numerical scale ranging from 0 to 5 in ascending order of symptom expression. Percentage of symptom expression previously described under Procedure.

The four varieties which showed no signs of Fire Blight during the three years of observation are 'Baladi', 'Kalmar Glasapple', 'Kizil alma' and 'Ruby Gem'. These of course could have been escapes. Perhaps of greater significance are the varieties which became infected with the pathogen but showed symptoms on a very small portion of the total tree area, indicating a high degree of resistance.

DISCUSSION

As indicated previously, the primary value of the introductions described in this paper is in their utilization in breeding programs directed toward early ripening varieties. Fruit characteristics such as size, appearance and quality in most cases are distinctly sub-standard when comparisons are made with commercial types. On the basis of quality alone, among 63 introductions under study only nine varieties were considered as good and only three as approaching excellent. As an example of a poor quality type, the variety 'Kizil alma' has but few characteristics which would make it of interest; primarily its extreme earliness, pleasing aroma and rosy pink skin; but countered against this are small size and pink-red, mealy flesh. A few of the varieties, however, as grown at Glenn Dale, approach commercial types in general fruit characteristics. Perhaps most outstanding are: 'Irish Peach', P.I. 104727, which develops as a very good early dessert apple but tends to be a little small. P.I. 143973, unofficially called 'Red Apple', which is perhaps one of the most brightly colored, attractive apples observed at Glenn Dale, also tends to be somewhat small. 'Signe Tillisch', P.I. 105132, except for a lack of overcolor, has most of the qualities necessary for a highly flavored early dessert type. Other varieties which have appeared worthy of consideration are 'Breakey', 'Feltham Beauty', 'Ingers', 'Laxton's Fortune', 'Mitschurins Samenloser' and 'Ruhm aus Kirchwarder'.

Average Daily Temperature (degrees Fahrenheit) and Departure from Long Term Means

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<tr>
<th>Year</th>
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<th>July</th>
<th>August</th>
<th>June</th>
<th>July</th>
<th>August</th>
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<td>75.0</td>
<td>72.6</td>
<td>6.55</td>
<td>8.18</td>
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<td>1944</td>
<td>73.4</td>
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<td>74.1</td>
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<td>72.3</td>
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Total Monthly Precipitation (inches) and Departure from Long Term Means

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* Range of ripening represents four years observations except where noted.
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<td>Dr. Clifford</td>
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</table>

Number of years for which the variety was tested in 1937 and 1938.
Table IV. Average Date of Full Bloom and of Harvest Together with Average Length of Growing Season.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Average date of full bloom</th>
<th>Average date of harvest</th>
<th>Average number of days between full bloom and harvest dates</th>
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<tr>
<td>Kizil alma</td>
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<td>6/25</td>
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<td>4/3</td>
<td>6/28-29</td>
<td>86</td>
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<td>4/22</td>
<td>7/6</td>
<td>75</td>
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<td>7/9</td>
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<td>7/10</td>
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<td>Variety</td>
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<td>Average date of harvest</td>
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LITERATURE CITED


51. Patterson, C. F. 1936. *Hardy Fruits - Saskatoon, Saskatchewan, Canada*.


'Antonovka Kamenichka'

P.I. 137036

Synonyms: "Antonovka Kamenithka"

Origin: Listed as a Russian import by Boccard's Nursery, Geneva, Switzerland.

Source: Pepinieres Boccard, Geneva, Switzerland, 4/30/40.

Literature: Duru, E. (19), and Grebnitskii, A. S. (22).

Date full bloom: April 25

Fruit characteristics:

Sizes: Diameter 2 3/4", length 2 1/4"

Shapes: Olate

Colors: 10 to 50%, striped and blushed, pink over greenish yellow

Flesh: Greenish white, soft, breaking, juicy, sweet to sub-acid

Quality: Poor to fair

Harvest date: July 22-25

Notes: Said to bear even at 1600 and 1800 meters altitude (Boccard Nursery, Geneva, Switzerland).

Fire blight Index: 3.0

'Antonovka Shafran'

P.I. 104990

Synonyms: "Antonovka shafrannai", "Safranfar bene Antonowka"


A cross, "Antonovka" (common) X "Orleans Reinette".


Date full bloom: April 28

Fruit characteristics:

Sizes: Diameter 1 7/8", length 1 5/8"

Shapes: Variable, roundish oblate to oblong truncate

Colors: 20%, striped red over yellowish green

Flesh: Creamy white, firm, crisp, juicy, sub-acid to acid

Quality: Poor

Harvest date: July 19-25

Fire blight Index: 1.0

'Baladi'

P.I. 187099

Synonyms: None known

Origin: Not known

Source: Dept. of Agr., Giza, Egypt, 3/1/50

Literature: None found

Date full bloom: April 27-30
Fruit characteristics

Sizes: diameter 2", length 1 3/4"
Shape: roundish truncate
Color: yellow, no blush
Flesh: white, tender to soft, mealy, dry, sweet
Quality: poor
Harvest dates: August 1

Notes: small, mealy, sweet apple with considerable brown streaking throughout flesh, mostly below skin and around core.

Fire blight Index: 0

'Battleford #2'

P.I. 144010

Synonyms: none known
Origins: from Russian apple seeds sent to Boughen Nurseries and first fruited at Battleford, Saskatchewan, Canada.
Sources: Boughen Nurseries, Valley River, Manitoba, Canada, 5/22/42.
Literatures: none found
Date full blooms: April 24

Fruit characteristics:

Sizes: diameter 2 3/8", length 2"
Shape: roundish oblate, somewhat truncate
Color: 60 to 95%, striped and blushed, crimson red over pale yellow
Flesh: white, firm to tender, crisp, breaking, juicy, sweet to sub-acid.
Quality: good
Harvest dates: July 27

Notes: tendency to breakdown, some water core, breakdown at cortical area near skin.

Fire blight Index: 1.0

'Bella de Jardines'

P.I. 105498

Synonyms: 'De Jardin'
Origins: of French origin, dates to the beginning of 19th century and seems to come from the environs of Paris.
Sources: Viveros Manuel San Juan, Sabinan, Zaragoza Province, Spain, 5/4/34.
Literatures: Diel (15), Leroy, A. (33), and Simon-Louis (62).
Date full blooms: April 25

Fruit characteristics:

Sizes: diameter 3 1/4", length 2 3/8"
Shape: roundish oblate to oblate
Color: 30 to 80%, striped and splashed crimson red over greenish yellow
Flesh: greenish to creamy white, tender, crisp, breaking, juicy, sub-acid to acid.
Quality: fair to good
Harvest dates: July 31 to August 4

Notes: decidedly tart until full ripe, then acid disappears leaving fruit with a slight banana flavor.

Fire blight Index: 1.66
'Belle Imperiale'  

Synonyms: 'Imperiale' (?)  
Origin: thought to be France.  
Source: Pepinieres de La Maladrerie, Caen, France, 1/17/48.  
Literature: Simon-Louis (62)  
Date full bloom: April 28  
Fruit characteristics:  
- Size: diameter 2 1/4", length 1 5/8"  
- Shape: oblate  
- Color: 95 to 100% red over yellow  
- Flesh: creamy, tender, mealy, moderate juicy to dry, sweet  
- Quality: poor to fair  
- Harvest date: July 16-18  
Note: a very mild flavored apple which tends to be quite dry and mealy.  
Of questionable value.  
Fire blight Index: 2.16

'Boskill #3'  

Synonyms: none known  
Origin: from Russian apple seeds sent to Boughen Nurseries, Manitoba, and first fruited by Mr. Frank Boskill, Rutland, Saskatchewan, Canada.  
Source: Boughen Nurseries, Valley River, Manitoba, Canada, 5/22/42.  
Literature: Patterson, C. F. (51).  
Date full bloom: April 27  
Fruit characteristics:  
- Size: diameter 2 5/8", length 2 1/8"  
- Shape: roundish, somewhat truncate  
- Color: 50 to 60%, striped, crimson red over greenish yellow  
- Flesh: creamy white, firm to tender, crisp to melting, moderately juicy, sweet to sub-acid.  
- Quality: fair to good  
- Harvest date: July 6-14  
Note: very mild flavored, tends to drop prematurely, resembles Ben Davis in appearance.  
Fire blight Index: 0.16

'Boskill #4'  

Synonyms: none known  
Origin: from Russian apple seeds sent to Boughen Nurseries, Manitoba, and first fruited by Mr. Frank Boskill, Rutland, Saskatchewan, Canada.  
Source: Boughen Nurseries, Valley River, Manitoba, Canada, 5/22/42.  
Literature: Patterson, C. F. (51).  
Date full bloom: April 28
Fruit characteristics:
  Sizes: diameter 2 1/2", length 2"
  Shapes: roundish
  Colors: 10%, blushed, pink over yellowish green
  Flesh: greenish white, tender to soft, crisp, breaking, moderately juicy, sweet to somewhat insipid.
  Quality: fair
  Harvest dates: July 14
  Notes: prolific bearer, watery breakdown, of questionable value.
  Fire blight Index: 1.33

'Breaky'

Synonyms: none known
Origin: Dominion Exp. Farm, Morden, Manitoba, Canada; a seedling of 'Blushed Calville' selected in 1929.
Source: M. B. Davis, Central Exp. Farm, Dept. of Agr., Ottawa, Canada, 4/6/37.
Literatures: Brooks, R. & H. P. Olmo (6), and Leslie, W. R. (34, 36, 37, 38).
Date full blooms: April 24
Fruit characteristics:
  Sizes: diameter 2 7/8", length 2"
  Shapes: roundish oblate
  Colors: 60-80%, striped and splashed red over greenish yellow
  Flesh: white, tender, crisp, breaking, juicy, sweet to sub-acid
  Quality: good
  Harvest dates: July 21-23
  Notes: large ornamental flowers, good dessert apple
  Fire blight Index: 1.0

'Bushy Grove'

Synonyms: 'Bushey Grove'
Origin: raised by Mr. J. T. Good at Bushey, Herts, England in 1897.
Parentage said to be 'Queen' X 'Bismarck'.
Literatures: Taylor, H. V. (67).
Date full blooms: April 27
Fruit characteristics:
  Sizes: diameter 3 3/8", length 2 5/8"
  Shapes: roundish oblate to conical
  Colors: 40 to 70%, striped and splashed, pink red over greenish yellow
  Flesh: greenish white, firm, crisp, breaking, juicy, sub-acid to acid, sprightly.
  Quality: good for culinary
  Harvest dates: July 31-August 1
  Notes: large very tart apple, tendency to rot while ripening
  Fire blight Index: 1.33
'Cooper's Seedling'
P.I. 157215

Synonyms: none known
Origin: not known
Source: Blackmoor Nurseries, Hampshire, England, 2/7/47.
Literature: Taylor, H. V. (67).
Date full blooms: April 26
Fruit characteristics:
Sizes: diameter 2 7/8", length 2 1/4"
Shape: roundish to conical
Color: 10%, blushed red over greenish yellow
Flesh: white, tender, melting, moderately juicy, sweet to sub-acid
Quality: fair
Harvest date: August 3
Notes: bears at an early age, fruits have tender flesh, poor keeper.
Fire blight Index: 1.33

'Crimson Beauty'
P.I. 143173
(also 260241)

Origin: about 1860 at Lynn, Leeds county, Ontario, Canada.
Source: Stone & Wellington, Fonthill Nurseries, Toronto, Ontario, Canada, 12/5/41.
Literature: Beach, S. A. (2), and Roberts, O. C. et al. (58).
Date full blooms: April 24
Fruit characteristics:
Sizes: diameter 2 3/4", length 2 1/8"
Shape: roundish oblate
Color: 75%, striped and splashed, red over yellow
Flesh: white, firm to tender, crisp to melting, juicy, sub-acid to acid
Quality: good
Harvest date: July 16
Notes: still bright and attractive after 7 weeks storage, although slight shriveling, becomes mild to sub-acid in storage.
Fire blight Index: 0.83

'Drap D'or Guemene'
P.I. 131823

Synonyms: "Drap d'or de Guemene"
Origin: not known
Literature: none found
Date full blooms: May 6
Fruit characteristics:
Sizes: diameter 2 3/8", length 1 7/8"
Shape: roundish oblate
Color: 60% striped red over yellow, heavy russeting
Flesh: white, firm, crisp, breaking, tough, moderately juicy, sub-acid.
Quality: poor
Harvest date: August 5
Note: heavy russetting makes fruit unattractive.
Fire blight Index: 0.66

'Dr. Clifford'

P.I. 131283

Synonyms: none known
Origin: not known
Literature: Taylor, H. V. (67).
Date full bloom: April 24
Fruit characteristics:
Sizes: diameter 3", length 2 3/8"
Shape: conical
Color: 60%, striped and splashed, red over yellow
Flesh: creamy, soft, breaking, moderately juicy, sub-acid.
Quality: fair, for culinary
Harvest dates: August 7
Fire blight Index: 0.33

'Duchess'

P.I. 148150

Origin: Russian, introduced into England in 1824. Introduced into USA 1835.
Date full bloom: April 23-24
Fruit characteristics:
Sizes: diameter 2 5/8", length 2"
Shape: oblate
Color: 70%, striped and blushed, red over yellowish green
Flesh: creamy white, tender to soft, breaking to somewhat mealy, medium dry, mostly sweet, some sub-acid.
Quality: mostly fair, some good
Harvest dates: July 16-20
Fire blight Index: 0.50
'Early Crimson'  
P.I. 127007

Synonyms: 'Laxton's Early Crimson'
Origin: raised by Laxton Bros. Nursery, Bedford, England, in 1908 from a cross of 'Worcester' X 'Gladstone'.
Literatures: Taylor, H. V. (67).
Date full bloom: April 3
Fruit characteristics:
Sizes: diameter 2 1/4", length 2"
Shapes: roundish ovate to conical
Colors: 75 to 100%, blush, some striped, crimson red over greenish yellow
Flesh: white, mostly tender, crisp to mealy, moderately juicy to dry, mild, sweet, almost insipid.
Quality: poor
Harvest dates: June 27-30
Notes: fully self-fertile, a heavy cropper.
Fire blight Index: 2

'Feltim Beauty'  
P.I. 127008

Synonyms: none known
Origin: raised and introduced in 1908 by Messrs. Veitch and said to be a cross of 'Cox's Orange' X 'Gladstone'.
Literatures: Bunyard, Ed. A. (7), and Taylor, H. V. (67).
Date full bloom: May 2
Fruit characteristics:
Sizes: diameter 2 5/8", length 2"
Shapes: roundish conical
Colors: 70 to 90%, striped and blushed, crimson red over greenish yellow
Flesh: white, soft, crisp, moderately juicy, sweet to sub-acid.
Quality: fair to mostly good
Harvest dates: July 25
Notes: usually good quality, something like 'Delicious' when fully ripe, turns mealy in storage.
Fire blight Index: 1.0

'Flintynskie'  
P.I. 131035

Synonyms: 'Flintinge Aeble'
Origin: not known
Sources: Szkoła Ogrodnicza Wielkopolskiej Izby Rolniczej, W. Koxminie, (Wlkp) Poland, 12/14/38.
Literatures: Florin, R. (20), and Kobel, F. (29).
Date full bloom: April 22
Fruit characteristics:
Sizes: diameter 3 3/8", length 2 3/4"
Shapes: roundish oblate to conical
Color: 40%, striped and blushed, orange red over greenish yellow
Flesh: greenish white, tender, crisp, breaking, moderately juicy to dry, sweet to sub-acid.
Quality: poor to fair
Harvest dates: July 31-August 4
Note: good size, but ripens unevenly and of only fair quality at best, of questionable value.
Fire blight Index: 2.33

"Gladstone"

Synonyms: 'Jackson's Seedling', 'Monsieur Gladstone', 'Mr. Gladstone'
Origins: a chance seedling found near Kidderminster, England and introduced by Blakedown Nursery in 1868.
Literatures: Beach, S. A. (2), Bunyard, Geo. (3), Hoblyn, T. N. (26), Straight, E. M. (66), Taylor, H. V. (67), and Wright, J. (72).
Date full blooms: May 1
Fruit characteristics:
Size: diameter 2 3/8", length 1 7/8"
Shape: roundish oblate to conical
Color: 80 to 100%, striped and blushed, crimson red over greenish yellow.
Flesh: creamy white, tender, crisp to somewhat mealy, moderately juicy, sweet to sub-acid.
Quality: fair to good.
Harvest dates: July 9-20
Note: good dessert apple for this season, however has size against it; heavy cropper, good pollinator.
Fire blight Index: 1.33

"Gyllenkroks Astrakan"

Synonyms: 'Astrakan Gyllenkroks', 'Gyllinbrooks Astrachan'
Origins: a Swedish variety; rather widely grown in that country.
Sources: Dr. C. G. Dahl, Experiment alfaltet, Akarp, Alnarp, Sweden, 3/16/34.
Literatures: Roberts, O. C. et al. (58) and Verner, L. (69).
Date full blooms: April 25-26
Fruit characteristics:
Size: diameter 2 5/8", length 1 7/8"
Shape: roundish oblate to truncate
Color: 70%, striped and blushed red over greenish yellow.
Flesh: creamy white, tender, mealy, moderately juicy, sweet to sub-acid.
Quality: fair.
Harvest dates: July 9
Fire blight Index: 0.16
**'Hampus'**

Synonyms: none known
Origin: a Swedish variety, rather widely grown in that country.
Sources: Dr. C. G. Dahl, Experiment-alfaltet, Akarp, Alnarp, Sweden, 3/16/34.
Literature: Kvalle, E. (31), and Verner, L. (69).
Date full blooms: April 24
Fruit characteristics:
- Sizes: diameter 2 1/8", length 1 5/8"
- Shapes: roundish oblate
- Colors: 30 to 70%, striped and splashed crimson red over pale green
- Flesh: white, tender to soft, somewhat mealy, moderately juicy, sweet to sub-acid.
- Quality: poor to fair
- Harvest date: July 18
Notes: does not keep well, tendency for flesh to break down and turn brown in cortical area near skin as fruit ripens.
Fire blight Index: 0.33

**'Hereford Cross'**

Synonyms: none known
Said to be 'Cox's Orange Pippin' open pollinated.
Sources: Univ. of Bristol through Res. Sta., Bristol, England, 3/9/34.
Literature: Roberts, O. C. et al. (58), and Spinks, G. T. (64).
Date of full blooms: April 23
Fruit characteristics:
- Sizes: diameter 2 3/4", length 1 7/8"
- Shapes: oblate
- Colors: 80 to 100%, blushed to solid, dark red over greenish yellow.
- Flesh: creamy white, soft, crisp to mostly mealy, moderately juicy, sweet.
- Quality: fair
- Harvest date: July 28 to August 1
Notes: a bland flavored variety, very attractive exterior, heavy cropper, bruises easily, some water core and internal browning near skin during some years, appears to be affected adversely by drought and heat.
Fire blight Index: 0.50

**'Heyer #12'**

Synonyms: 'Meyer #12' (incorrect)
Origin: C. A. Heyer, Neville, Saskatchewan, Canada
Sources: Dominion Exp. Sta., Morden, Manitoba, Canada, 9/12/45.
Date full blooms: April 25
Fruit characteristics:
- Sizes: diameter 2 1/4", length 2"
- Shapes: globular
Color: pale yellow, no blush  
Flesh: creamy white, tender to soft, mealy, moderately juicy, sweet to sub-acid.  
Quality: poor to fair  
Harvest date: July 15-17  
Note: very tender skin, does not need peeling for pie or apple sauce; skin dissolves on cooking; apparently does better in Canada than here.

Fire blight Index: 0.50

"Ingers"  
P.I. 114318

Synonyms: none known

Origins: not known

Source: N. Esbjerg, director, Statens forsogsstation Blangsted, Odense, Denmark, 4/10/36.

Literature: none found

Date full bloom: May 5

Fruit characteristics:

Sizes: diameter 2 7/8", length 2 5/8"
Shapes: roundish ovate
Color: 40-70%, striped and splashed red over yellowish green
Flesh: white, tender, crisp, juicy, sub-acid to acid.
Quality: good

Harvest dates: July 21

Notes: good dessert apple, although somewhat more tart than desirable

Fire blight Index: 1.33

"Irish Peach"  
P.I. 104727


Origins: an Irish variety, introduced into England early in 19th century.


Date full bloom: April 23

Fruit characteristics:

Sizes: diameter 2 1/8", length 1 5/8"
Shapes: oblate
Color: 30 to 65%, striped red over yellow.
Flesh: creamy, firm to tender, crisp, breaking, moderately juicy, sweet to sub-acid.

Quality: good to excellent

Harvest date: July 17-19
Notes: Good texture and quality for early dessert apples, but too small; should be of interest to breeders. Considered to be a good pollinator.
Diploid chromosome number. Bears on tips and not on spurs.

Fire blight Index: 1.0

'Jaune lu Desert' P.I. 161762

Synonyms: none known
Origin: not known
Literature: none found
Date full bloom: May 2-3
Fruit characteristics:
Sizes: diameter 2 3/8", length 2 1/8"
Shape: roundish conical
Color: 80%, blushed yellowish orange over green
Flesh: white, firm, mealy to somewhat corky, dry, sweet to insipid
Quality: poor
Harvest dates: July 4
Fire blight Index: 1.25

'Kalmar Glasapple' P.I. 104798

Synonyms: none known
Origin: grown rather widely in Sweden, believed to have originated there.
Source: Dr. Carl G. Dahl, director, Experimentalfältet, Akarp, Alnarp, Sweden, 3/16/34.
Literature: Verner, L. (69).
Date full bloom: April 25
Fruit characteristics:
Sizes: diameter 2 5/8", length 1 3/4"
Shape: oblate
Color: greenish yellow, no blush
Flesh: creamy, firm, crisp, moderately to abundantly juicy, sub-acid.
Quality: fair
Harvest dates: July 26 to August 2
Fire blight Index: 0

'Kaviö' P.I. 104799

Synonyms: none known
Origin: believed to be Sweden.
Source: Dr. Carl G. Dahl, director, Experimentalfältet, Akarp, Alnarp, Sweden, 3/16/34.
Literature: Florin, R. (20)
Date full bloom: April 25
Fruit characteristics:
Sizes: diameter 3 1/4", length 2 5/8"
Shape: roundish oblate slightly conical
Colors: 60 to 85% striped and splashed red over yellowish green
Flesh: creamy white, tender, crisp, moderately juicy, sweet to sub-acid,
Quality: fair to good
Harvest dates: July 13-17
Notes: tends to ripen unevenly, possible value as an early cooking apple.
Fire blight Index: 0.66

Kizil alma
P. I. 30327

Synonyms: none known
Origin: Khotan, Chinese Turkestan
Source: Mr. Frank N. Meyer, USDA Agricultural Explorer, Turkestan, 11/25/10.
Literature: none found
Date full blooms: April 14
Fruit characteristics:
  - Size: diameter 1 5/8", length 1 1/4"
  - Shape: roundish oblate
  - Color: 80 to 100% blushed bright rosy pink over very pale yellow
  - Flesh: pinkish red, mealy, sweet, highly aromatic
  - Quality: poor
  - Harvest dates: June 24-26
Notes: the trees do not grow to very large dimensions, but are able to stand drought, alkali, and neglect.
Fire blight Index: 0

Kuotesaho
P. I. 157209

Synonyms: none known
Origin: not known
Source: O. Syring, Plantskola, Vaasa, Finland, 2/4/47.
Literature: none found
Date full blooms: April 23-26
Fruit characteristics:
  - Size: diameter 3", length 2 1/2"
  - Shape: roundish oblate to conical
  - Color: 50 to 90%, striped and splashed crimson to pinkish red over greenish yellow.
  - Flesh: creamy white, firm to tender, crisp to melting, juicy, mostly sub-acid.
  - Quality: fair to good
  - Harvest dates: July 17
Notes: tendency toward breakdown of flesh, some watercore, otherwise would be promising as an early culinary type.
Fire blight Index: 1.8
"Kutanka"  P.I. 144018

Synonyms: "Kitaika" (?)
Origins: Russian apple grown from named scions originally from Leningrad.
Sources: Boughen Nurseries, Valley River, Manitoba, Canada, 5/22/42.
Literatures: none found
Date full bloom: April 24-30
Fruit characteristics:
   Size: diameter 2 5/8", length 2"
   Shape: roundish oblate to truncate
   Color: 40 to 90%, striped and splashed, crimson over yellowish green
   Flesh: white, firm to tender, crisp to melting, juicy, sub-acid
   Quality: fair
   Harvest dates: July 9-13
Notes: prolific bearer, ripens unevenly, some watercore some years, shriveling, internal breakdown and mealiness after two months cold storage.
Fire blight Index: 1.16

"Laxton's Epicure"  P.I. 123744

Synonyms: none known
Origins: introduced by Laxton's Nursery, Bedford, England to commerce in 1929, "Cox's Orange" X "Wealthy".
Literatures: Norbury, C. P. (50), Potter, J. M. S. (56), and Roberts, O. C. et al. (56).
Date full bloom: April 26
Fruit characteristics:
   Size: diameter 2 3/8", length 2"
   Shape: roundish to somewhat oblate
   Color: 50 to 100%, striped and splashed, crimson over yellow
   Flesh: white, tender, breaking, juicy, sweet to slightly sub-acid
   Quality: fair
   Harvest dates: July 23
Notes: heavy cropper, good quality some years, listed as self-fertile.
Fire blight Index: 1.50

"Laxton's Fortune"  P.I. 127009
(also 238788)

Synonyms: "Fortune"
Origins: raised by Laxton Nurseries, Bedford, England in 1904 from "Cox's Orange Pippin" X "Wealthy".
Literatures: Taylor, H. V. (67), and Wicks, A. T. (71).
Date full bloom: April 27
Fruit characteristics:
   Size: diameter 2 1/2", length 2 1/4"
   Shape: roundish to conical
   Color: 70 to 90%, striped and blushed, crimson red over greenish yellow.
Flesh: creamy, firm to mostly tender, crisp, juicy, sweet to sub-acid.
Quality: good
Harvest dates: August 7
Notes: good cropper, good early dessert apple, self-fertile.
Fire blight Index: no reading

'Laxton's Leader'

Synonyms: 'Leader'
Origin: Laxton Bros., Nursery, Bedford, England from cross 'Mr. Gladstone' X 'Worcester Pearmain'.
Literature: Taylor, H. V. (67).
Date full bloom: April 22
Fruit characteristics:
  Size: diameter 1 7/8", length 1 5/8"
  Shape: roundish to conical
  Color: 90% blush, red over yellow
  Flesh: white, firm to tender, crisp, juicy, mild, sweet
  Quality: fair to good
  Harvest dates: July 6
Notes: rather good quality and appearance, but too small.
Fire blight Index: 0.66

'Laxton's Pioneer'

Synonyms: 'Pioneer'
Origin: Laxton Bros., 'Cox's Orange Pippin' X 'Worcester Pearmain'.
Literature: none found
Date full bloom: April 27
Fruit characteristics:
  Size: diameter 2 5/8", length 2"
  Shape: roundish oblate
  Color: 40 to 60% striped and blushed, red over greenish yellow
  Flesh: white, tender, crisp, breaking, juicy, sweet to sub-acid
  Quality: poor to fair
  Harvest dates: July 16-18
Notes: ripens unevenly, very subject to rot.
Fire blight Index: 2.0

'Lowland Raspberry'

Origin: a hardy apple of Russia
Source: Stone & Wellington, Fonthill Nurseries, Toronto, Ontario, Canada, 12/5/41.

Date full bloom: April 25-28

Fruit characteristics:
- Size: diameter 3", length 2 1/2"
- Shape: roundish oblate, slightly truncate
- Color: 25 to 40% striped and splashed, crimson to raspberry red over greenish white
- Flesh: white, tender to soft, breaking to melting, moderately juicy, sweet to slightly sub-acid
- Quality: fair to good
- Harvest dates: July 15-18

Notes: an old variety with rather good dessert quality, perfumed flavor

Fire blight Index: 0.50

'Macross'

P.I. 143183

Synonyms: none known

Origin: a 'McIntosh' seedling originating at Central Exp. Farm, Ottawa, Canada, from seed sown in 1898.

Source: Stone and Wellington, Fonthill Nurseries, Toronto, Ontario, Canada, 12/5/41.

Literature: Macoun, W. T. (44, 45) and Roberts, O. C. et al. (58).

Date full bloom: April 23-27

Fruit characteristics:
- Size: diameter 3", length 2 3/4"
- Shape: roundish
- Color: 10%, striped and blushed, crimson red over greenish yellow
- Flesh: white, tender, breaking, moderately juicy, sub-acid to acid
- Quality: good
- Harvest dates: July 15-18

Notes: large, somewhat too acid for good dessert type; does not resemble 'McIntosh' except in color of skin; seems to produce a majority of abortive seed.

Fire blight Index: 1.5

'Millicent A. Barnes'

P.I. 131079

Synonyms: 'Millicent', 'Millicent Barnes'

Origin: Mr. N. F. Barnes, Eaton Hall, Chester, England from cross 'Cox's Orange Pippin' X 'Goscoyne's Scarlet'.

Source: Clibriams Ltd., Altringham, England, 12/19/38.

Literature: Taylor, H. V. (67)

Date full bloom: April 29

Fruit characteristics:
- Size: diameter 3 1/8", length 2 1/2"
- Shape: roundish oblate to roundish ovate
- Color: 60 to 80% striped and blushed, red over greenish yellow
Flesh: white, firm, crisp, breaking, very juicy, sub-acid to highly acid
Quality: fair
Harvest date: August 5
Note: attractive, firm, good size, juicy, but very tart; small, clear, bright green areas scattered throughout flesh make this apple of questionable value; self-sterile, but a regular bearer at Glenn Dale.

Fire blight Index: 3.66

'Miron Sacnaranij'

Synonyms: none known
Origin: not known
Literature: none found
Date full bloom: April 25-May 4

Fruit characteristics:
Size: diameter 2 7/8", length 2 1/4"
Shape: oblate to truncate
Color: 50%, striped and splashed, red over greenish yellow
Flesh: greenish white, firm to tender, crisp, moderately juicy, sub-acid
Quality: fair
Harvest date: July 27

Fire blight Index: 0.83

'Mitschurins Samenloser'

Synonyms: 'Bessemani', 'Bessemanka', 'Bessemanka Michurinska', 'Bessemanka Mitschurinskaja', 'Michurins Samenloser' (incorrect), 'Michurins Seedless', 'Seedless of Mitchurin'.
Origin: I. V. Michurin, USSR, cross of 'Krischapel' X 'Kernlose Komsinskaya' in 1912.
Literature: Petersen, A. (52), and Zuets, V. K. (74).
Date full bloom: April 25

Fruit characteristics:
Size: diameter 2 1/2", length 1 7/8"
Shape: oblate
Color: 70 to 80%, striped and splashed, red over yellow
Flesh: greenish white, tender, breaking, juicy, sweet to sub-acid
Quality: good
Harvest date: July 26
Note: pleasantly mild flavor

Fire blight Index: 1.0
"Newport Cross"  
P.I. 104615

Synonyms: none known  
A cross of 'Devonshire Quarrenden' X 'Cox's Orange Pippin'.
Source: Prof. E. T. P. Barker, Univ. of Bristol, through G. T. Spinks,  
Literatures: Spinks, G. T. (64)
Date full bloom: April 23
Fruit characteristics:  
Sizes: diameter 2 3/4", length 2"
Shape: roundish oblate
Color: 90 to 100%, blushed to solid dark red over yellow
Flesh: white, tender, somewhat mealy, moderately juicy, sweet to  
slightly sub-acid.
Quality: poor to fair
Harvest dates: July 28-30
Notes: does not store well.
Fire blight Index: 2.33

"Northern Dumplin"  
P.I. 137093

Synonyms: none known  
Origin: not known
Source: Fepinieres Armand op de Beeck, Putte-lez-Malines, Belgium, 5/1/40.
Literatures: Simon-Louis (62)
Date full bloom: April 27
Fruit characteristics:  
Sizes: diameter 3 1/4", length 2 1/2"
Shape: roundish oblate to conical
Color: green, no blush
Flesh: white, firm to tender, breaking to somewhat mealy, moderately  
juicy, acid.
Quality: poor
Harvest dates: July 21-29
Notes: fruit very acid
Fire blight Index: 3.0

"Ottawa #452"  
P.I. 137579

Synonyms: none known  
Origin: believed to have originated at the Ottawa station.
Source: Dr. M. B. Davis, Central Exp. Farm, Ottawa, Canada, 4/28/40.
Literatures: none found
Date full bloom: April 23
Fruit characteristics:  
Sizes: diameter 2 3/8", length 1 3/4"
Shape: roundish oblate
Color: greenish yellow, no blush
Flesh: white, tender, crisp to breaking, moderately juicy, sweet  
to sub-acid.
Quality: fair to good  
Harvest dates: July 14-16

Notes: turns mealy in storage, very dwarf grower, rather spreading.
Fire blight Index: 0.66

'Oxbo'  P.I. 127703

Synonyms: none known
Origin: a seedling of 'Roxbury Russet' × ('Duchess of Oldenburg'?)
Date full bloom: April 22
Fruit characteristics:
Sizes: diameter 3 1/4", length 2 3/4"
Shapes: roundish oblate
Colors: yellow, no blush
Flesh: white, tender, crisp, breaking, juicy, sub-acid
Quality: fair
Harvest dates: July 29-August 1
Fire blight Index: 1.0

'P. J. Berquis'  P. I. 102144

Synonyms: 'P. J. Bergius', 'Safstaholm' (incorrect)
Origin: a bud sport of 'Safstaholm'
Source: Dr. C. G. Dahl, Forestandare for Alnarps Tradgardsskola, Akarp, Sweden, 3/2/33.
Literature: Florin, R. (20).
Date full bloom: April 25
Fruit characteristics:
Sizes: diameter 2 1/4", length 1 5/8"
Shapes: roundish oblate
Colors: 80 to 95% striped and blushed, bright red over greenish yellow
Flesh: white, soft, fine, slightly mealy, somewhat dry, mild, sub-acid
Quality: fair
Harvest dates: July 12-15
Notes: similar, but much better appearance than 'Safstaholm'; one of most attractive fruits of this season; however, does not have the flavor and richness of 'Irish Peach'.
Fire blight Index: 1.50

'Pomme Framboise'  P.I. 131975

Synonyms: 'Violette Des Quatre Gouts' (?)
Origin: not known
Date full bloom: April 28
Fruit characteristics:
Sizes: diameter 2 3/8", length 2 1/4"
Shapes: oblong, conical
Colors: 80 to 100%, blush, red over yellowish green
Flesh: white, firm to tender, crisp, breaking, moderately juicy, sweet to sub-acid.
Quality: fair to good
Harvest dates: July 18-20
Notes: excellent quality some years, others only fair to good; turns mealy when stored.
Fire blight Index: 0.16

**Quarrenden Red**

P.I. 126889

Synonyms: "Devonshire Quarrenden"(?), "Englisher Scharlack Pippin"(?), "Morgenrothapfel"(?), "Quarrendon"(?), "Quarrington"(?), "Quarrendon du Comte de Devon"(?), "Red Quarrenden", "Rothe Quarrendon", "Rother 2", "Sack Apple"(?), "Secktapfel"(?), "Weinapfel"(?).

Origin: said to be an old English variety known since the 17th century.


Date full bloom: April 27

Fruit characteristics:

Size: diameter 2 1/4", length 1 5/8"

Shape: roundish oblate

Color: 60-80%, blush dull red over greenish yellow

Flesh: greenish white, firm crisp, breaking, juicy, sweet to sub-acid.

Quality: fair to good

Harvest dates: July 27

Notes: rather good quality but dull, unattractive and lacks size.

Fire blight Index: 0.33

**Red Astrakan**

P.I. 148147


Origin: one of the first of the Russian apples imported into America; imported into England from Sweden 1816.


Date full bloom: April 24

Fruit characteristics:

Size: diameter 2 3/4", length 2"

Shape: oblate

Color: 75%, striped and blushed, crimson to pinkish red over yellowish green
Flesh: white, firm to tender, crisp, breaking, moderately juicy, sweet to sub-acid.
Quality: fair to good
Harvest dates: July 5-13
Notes: mild but rather good flavor
Fire blight Index: 0.16

"Reinette Jamin" P.I. 135645

Synonyms: none known
Origins: not known
Sources: Philibert Moussier, Vienne (Isere), France, 2/29/40.
Literatures: none found
Date full bloom: April 24
Fruit characteristics:
  Size: diameter 3", length 2 1/2"
  Shape: oblate
  Color: greenish yellow, no blush
  Flesh: greenish white, firm, crisp, breaking, moderately juicy, sub-acid to sprightly.
  Quality: fair to good
Harvest dates: August 1-5
Notes: possibly good as a culinary apple
Fire blight Index: 2.33

"Ruby Gem" P.I. 133518

Synonyms: none known
Origins: not known
Sources: L. P. Rosen & Sons, Carlingford, New South Wales, Australia, 7/25/39.
Literatures: none found
Date full bloom: April 22
Fruit characteristics:
  Size: diameter 2 7/8", length 2 1/4"
  Shape: roundish oblate
  Color: 60 to 70%, striped and blushed, red over yellow
  Flesh: white, tender, crisp to somewhat mealy, moderately juicy, sweet to sub-acid.
  Quality: fair to good
Harvest date: July 25
Notes: drops easily, resistant to wooly aphis
Fire blight Index: 0

"Ruhm aus Kirchwarder" P.I. 126588

Synonyms: "Ruhm von Kirchwarder", "Rhum von Kirchwarder" (incorrect)
Origins: not known
Sources: Herrn P. Mauk Obstbaumschulen, Wurttemberg, Germany, 1/7/38

Date: full blooms: April 24

Fruit characteristics:
- Sizes: diameter 2 5/8", length 2"
- Shapes: roundish oblate
- Color: 95 to 100% blush, striped, crimson red over greenish yellow
- Fleshes: creamy yellow, firm, crisp, breaking, juicy, sweet to sub-acid
- Quality: good
- Harvest dates: July 26-27

Notes: Good firm combination dessert, culinary apple, good color

Fire blight Index: 1.0

'Safstaholm' P.I. 104811
(also 157212 and 199421)

Synonyms: 'Deutschlands Obstsorten', 'Engelbrecht', 'Safstaholms', 'Safstaholms', 'Safstaholmsapfel', 'Safstaholmsapple', 'Safstaholmer-apfel', 'Safstaholmer Rosenapfel'.

Origins: Sodermanland, Sweden, about 1835, later introduced and widely grown over northern Europe. Introduced into U.S.A. in 1901.

Sources: Dr. C. G. Dahl, Forestandare for Alnarps Trädgårdsskola, Akarp, Sweden, 3/16/34.

Literatures: Beach, S. A. (2), Kvalle, E. (31), Mathieu, G. (47), and Verner, L. (69, 70).

Date: full blooms: April 28-29

Fruit characteristics:
- Sizes: diameter 2 1/4", length 1 3/4"
- Shapes: roundish oblate
- Color: 40 to 60%, striped and splashed red over greenish yellow
- Fleshes: white, soft, tender, fine texture, crisp to somewhat mealy, moderately juicy, sweet to mild sub-acid.
- Quality: fair
- Harvest dates: July 14

Notes: self sterile, but good pollinator; stores well for an apple of this season.

Fire blight Index: 1.0

'St. Everard' P.I. 123732

Synonyms: none known

Origins: raised by a gardener at Papworth St. Everard, near Cambridge, England, reported as a cross of 'Cox's Orange Pippin' X 'Margil'.

Introduced in 1910 by Veitch & Co.


Literatures: Crane, M. B. (13), Taylor, H. V. (67).

Date: full blooms: April 24
Fruit characteristics:
Sizes: diameter 1 7/8", length 1 1/2"
Shape: oblate
Color: 40% striped red over greenish yellow
Flesh: creamy, firm, crisp, juicy, sub-acid.
Quality: fair
Harvest dates: July 17
Note: small yellow apple of questionable value; listed as self-fertile.
Fire blight Index: 0.66

'Shard's Early'

Synonyms: 'Lancaster Queen', 'Polecat', 'Queen', 'Sharpe's Early', 'Summer Queen', 'Sweet's Harvest', 'Swett's Harvest'.
Origin: an old variety which is supposed to have originated in United States.
Literature: Beach, S. A. (2).
Date full bloom: April 29
Fruit characteristics:
Sizes: diameter 2 1/2", length 2 1/8"
Shape: roundish conical
Color: 30 to 50%, striped and blushed, pinkish red over greenish yellow.
Flesh: greenish white, firm to tender, crisp to mealy, juicy, sweet to sub-acid.
Quality: poor
Harvest dates: July 21
Note: subject to water core
Fire blight Index: 1.66

'Signe Tillisch'

Synonyms: 'Sign Tillish', 'Signe Tillish'.
Origin: raised from seed in 1866 by K. H. Tillish in Bjerre bei Horsens (Jutland) Denmark and named for his daughter.
Source: Martino Biancki. Pistoia, Italy, 4/2/34.
Date full bloom: April 28
Fruit characteristics:
Sizes: diameter 3 3/8", length 2 3/4"
Shape: oblate to truncate
Color: greenish yellow, no blush
Flesh: greenish white, firm, crisp, breaking, juicy, sub-acid.
Quality: good to excellent
Harvest dates: July 30
Notes: has good size, very good quality when ripe, not a culinary apple; appearance not bad, but lacks overcolor.

Fire blight Index: 2.66

'Sunset'

P.I. 157216

Synonyms: none known

Origin: Mr. G. C. Addy, Halstead, Essex, England; a cross between 'Cox's Orange Pippin' and 'James Greeve'.

Source: Blackmoor Nurseries, Hampshire, England, 2/7/47.

Literature: Potter, J. (56).

Date full bloom: April 26

Fruit characteristics:
- Size: diameter 2 1/2", length 1 3/4"
- Shape: roundish oblate to truncate
- Color: 10 to 60%, striped and splashed, orange red over greenish yellow
- Flesh: greenish to creamy white, firm to tender, juicy, sweet to sub-acid
- Quality: fair to good for culinary
- Harvest dates: July 30 to August 1

Notes: some water core some years; resistant to frost; self sterile.

Fire blight Index: 1.66

'Sweet Bough'

P.I. 143190


Origin: said to be of American origin, described by Coxe in 1817 under name of Bough apple.

Source: Stone and Wellington, Fonthill Nurseries, Toronto, Ontario, Canada, 12/5/41.


Date full bloom: May 1

Fruit characteristics:
- Size: diameter 2 7/8", length 2 1/8"
- Shape: roundish oblate to conical
- Color: yellow, no blush
- Flesh: white, tender, melting, moderately juicy, sweet
- Quality: fair to good
- Harvest dates: August 3

Notes: a mild flavored apple which tends to bruise easily.
'Vinnoe' P.I. 151262

Synonyms: 'Wine-apple'.
Origin: from Leningrad, U.S.S.R.
Source: Boughen Nurseries, Valley River, Manitoba, Canada, 6/14/45.
Literature: Kordon, P. N. (30).
Date full bloom: April 24
Fruit characteristics:
  Size: diameter 2 1/2", length 2"
  Shape: oblate
  Color: 90 to 100%, splashed to solid, red over green
  Flesh: greenish white, tender, breaking to somewhat mealy, moderately juicy, sub-acid to acid
  Quality: fair to good
Harvest date: July 18-24
Note: rather good quality but becomes mealy when full ripe.
Fire blight Index: 1.0

'Yellow Transparent' P.I. 148149

Synonyms: 'De Revel', 'Early Transparent', 'Grand Sultan', 'Revelstone', 'Skwoseoi Schotoi', 'Transparente de Saint-Leger', 'Transparente Jaune', 'White Transparent' (?).
Origin: Russia; introduced into England early in 19th century.
Literature: Beach, S. A. (2), Bunyard, Ed. A. (7), Bunyard, G. and O. Thomas (9), Roberts, O. C. et al. (58) and Taylor, H. V. (67).
Date full bloom: April 25-27
Fruit characteristics:
  Size: diameter 2 1/2", length 2"
  Shape: roundish oblate
  Color: greenish yellow, no blush
  Flesh: white, firm, crisp, moderately juicy, sub-acid
  Quality: fair to good
Harvest date: July 10-12
Fire blight Index: 0.66

'Yephory's Chernogous' P.I. 144031

Synonyms: 'Zephory's Chernogous' (?)
Origin: Russian variety grown from scions received from Leningrad.
Source: Boughen Nurseries, Valley River, Manitoba, Canada, 5/22/42.
Literature: none found
Date full bloom: April 27
Fruit characteristics:
  Size: diameter 2 1/4", length 1 7/8"
  Shape: roundish conical
  Color: 60 to 80%, striped and splashed, red over greenish yellow
Flesh: greenish white, firm, crisp, breaking, juicy, sweet to mostly sub-acid.
Quality: fair
Harvest date: July 8-12
Note: of questionable value
Fire blight Index: 0.33

"Zigeunerinapfel"  
P.I. 126998

Synonyms: 'Gypsy apple', 'Zigeuner-apfel'.
Origin: Russian
Source: Jacob Zavelberg, Koln, Germany, 2/7/38.
Literature: Biedenfeld, F. von (3), Pohl (53), Sehrt, L. (60), Stoll (65)
Date full bloom: April 23
Fruit characteristics:
  Size: diameter 2 5/8", length 2 1/2"
  Shape: roundish oblate
  Color: 80%, striped and blushed, red over yellow
  Flesh: creamy white, firm, crisp, juicy, sub-acid to acid.
  Quality: fair
Harvest date: July 16-18
Fire blight Index: 1.33

(no variety name)  
P.I. 102174

Synonyms: none
Origin: a red apple from Lunnatoten, Opland Fylke, Norway.
Literature: none found
Date full bloom: April 29
Fruit characteristics:
  Size: diameter 2 5/8", length 1 7/8"
  Shape: oblate
  Color: 45 to 98%, striped and splashed, orange red over greenish yellow
  Flesh: greenish white, firm to tender, crisp, breaking, moderately juicy, sweet to sub-acid.
  Quality: fair
Harvest date: July 30-31
Note: quality and appearance highly variable different years.
Fire blight Index: 0.33

(no variety name)  
P.I. 143973
(also 141871)

Synonyms: none known
Origin: An Indian Head seedling, first fruited in the Dropmore district, unofficially called 'Red Apple'.
Source: Manitoba Hardy Plant Nursery, Dropmore, Manitoba, Canada, 5/11/42.
Literature: none found
Date full bloom: April 26
Fruit characteristics:
  Size: diameter 2 1/2", length 2"
  Shape: roundish
  Color: 90 to 100%, blushed, crimson to dark red over greenish yellow
  Flesh: greenish white, firm to tender, crisp, breaking, moderately juicy, sweet to sub-acid.
  Quality: good to excellent
Harvest date: July 30
Note: has excellent color and appearance, 'McIntosh'-like quality except slightly more acid, becomes somewhat mealy when full-ripe.
Fire blight Index: 1.33