

# When to Pick Home Orchard Apple Varieties

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We had a farm until I was twelve, with the usual orchard of old home favorites. Then I grew up, went to work, married, and it was 1930 before I could buy our place, consisting mostly of old abandoned farm land. Gradually clearing fields that had grown up in brush, I began to rebuild the old home orchard.

Then I retired in 1954 to live on the farm. Decided to go to our state agricultural college in 1955 for a ten-week short course of 40 hours a week on fruits, vegetables, soils, fertilizers, insects, diseases, etc. Having had trouble with trees turning out to be not true-to-name, I learned the language of the systematic pomologists so that I could understand the descriptions, and identify a named variety from its description. The next step was to learn to identify a variety from its tree and characters in the nursery row. Then I collected as many of the old apple books as I could by browsing the second hand book stores, in order to study all the old favorites. I changed from standard trees to semi-dwarfs, and restricted my new varieties to what my old apple books described as good to very good, or very good to best, and dessert quality preferred.

I think my outstanding problem—and one not as yet fully resolved—is the question of apple maturity and ripeness. My course at Rutgers did not give it. I wrote to American Fruit Grower magazine in 1956 about an article in their September issue by Ryall of USDA, on how to tell when to pick apples. Mr. Ryall replied that that no research work had been done on the old varieties to his knowledge,

and suggested that it should be possible to keep a record of bloom dates for each variety, obtain a color chart and a pressure tester, and probably, within a few years, to develop my own standards for these old favorites.

In 1961 I attended a two-day conference at Rutgers on "Factors Affecting Fruit Condition." After listening to a gathering of the top apple men from all over the United States plead ignorance on this question of maturity, I felt better. While there, speaking to one of my former professors, I told him of my continuing search for the answers I had not obtained in his course. He frankly replied that it had not been included because he did not know the answers.

In 1956, I had obtained the ground color chart and pressure tester suggested by Ryall, and had started to check up on the orchard in a general way. After the Rutgers conference in 1961, I made up a summary from my notes at that meeting, and went to work systematically, as suggested by Ryall. Here are the notes.

"The conditions that cause variation in the number of days from full bloom to optimum maturity are as follows:

1. (a) Apples on trees with a light crop may be a few days earlier than those with a moderate crop.
- (b) Apples on trees with a heavy crop could be a few days later (3 to 5 days).
2. (a) Trees in a low state of vigor as indicated by leaf size and color may produce apples of optimum harvest maturity a few days earlier.

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Table 1. Index of apple varieties showing ripening dates in 1968 at Boonton, N.J., arranged alphabetically in groups based on number of days from full bloom to estimated date of harvest maturity (tree ripe).

| Name of Variety      | Days from Full Bloom | Date of Full Bloom | Predicted Picking Date | Actual Picking Date | Adjustment in days |            |             |     | Total | Remarks       |
|----------------------|----------------------|--------------------|------------------------|---------------------|--------------------|------------|-------------|-----|-------|---------------|
|                      |                      |                    |                        |                     | Light Crop         | Heavy Crop | Early Bloom |     |       |               |
| Early Harvest        | 70                   | 4/29               | 7/8                    | 7/23                |                    | + 3        | + 12        |     |       |               |
| Lodi                 | 75                   | 4/26               | 7/10                   | 7/25                |                    | + 3        | + 12        |     |       |               |
| Lowland Raspberry    | 75                   | 4/23               | 7/7                    | 7/23                |                    | + 1        | + 15        | 16  |       |               |
| Red Astrachan        | 75                   | 4/22               | 7/6                    | 7/25                |                    | + 4        | + 15        | 19  |       | SSPN          |
| Summer Rose          | 75                   | 4/26               | 7/11                   | 7/26                |                    | + 3        | + 12        | 15  |       | SSPN          |
| Sweet Bough          | 75                   | 4/30               | 7/15                   | 7/26                |                    |            | + 11        | 11  |       |               |
| Yellow Transparent   | 75                   | 4/28               | 7/13                   | 7/25                |                    |            | + 12        |     |       |               |
| Chenango             | 90                   | 5/2                | 8/1                    | 8/13                |                    | + 2        | + 10        | 12  |       | SSPN          |
| Early McIntosh       | 90                   | 4/29               | 7/29                   | 8/10                |                    |            | + 12        | 12  |       |               |
| Lyman's Large Summer | 90                   | 4/29               | 7/29                   | 8/10                |                    |            | + 12        | 12  |       |               |
| Oldenburgh           | 90                   | 4/29               | 7/28                   | 8/11                |                    | + 2        | + 12        | 14  |       | SSPN          |
| Early Joe            | 95                   | 4/29               | 8/2                    | 8/16                |                    | + 3        | + 12        | 15  |       |               |
| Ottawa 292           | 95                   | 4/26               | 7/30                   | 8/11                |                    |            | + 12        | 12  |       | SPN           |
| Primate              | 95                   | 4/25               | 7/29                   | 8/8                 | - 2                |            | + 12        | 10  |       | SSPN          |
| Wellington           | 95                   | 4/22               | 7/27                   | 8/11                |                    |            | + 15        | 15  |       |               |
| Dyer                 | 100                  | 4/30               | 8/9                    | 8/21                |                    | + 1        | + 11        | 12  |       | SPN           |
| Jefferies            | 100                  | 4/26               | 8/5                    | 8/18                |                    | + 1        | + 12        | 13  |       | SSPN          |
| Lobo                 | 100                  | 4/29               | 8/8                    | 8/27                |                    | + 2        | + 12        | 14  |       |               |
| Lord's Seedling      | 100                  | 4/28               | 8/7                    | 8/17                | - 2                |            | + 12        | 10  |       |               |
| Muster               | 100                  | 4/28               | 8/7                    | 8/21                |                    | + 2        | + 12        | 14  |       |               |
| Opalescent           | 100                  | 4/30               | 8/9                    | 8/20                |                    |            | + 11        | 11  |       |               |
| Porter               | 100                  | 5/1                | 8/10                   | 8/21                |                    | + 1        | + 10        | 11  |       | SSPN          |
| Rambo Franc          | 100                  | 4/28               | 8/7                    | 8/19                |                    |            | + 12        | 12  |       |               |
| Starr                | 100                  | 4/30               | 8/9                    | 8/19                | - 1                |            | + 11        | 10  |       |               |
| Sopps of Wine        | 100                  | 4/29               | 8/8                    | 8/18                | - 1                |            | + 11        | 10  |       |               |
| Summer Pearmain      | 100                  | 4/25               | 8/4                    | 8/16                |                    |            | + 12        | 12  |       | SSPN          |
| Maiden Blush         | 105                  | 4/30               | 8/14                   | 8/24                |                    |            | + 10        | 10  |       | SSPN          |
| Cox Orange           | 110                  | 5/1                | 8/20                   | 8/28                | - 2                |            | + 10        | 8   |       |               |
| Fall Pippin          | 110                  | 4/30               | 8/19                   | 8/28                | - 1                |            | + 10        | 9   |       | SSPN          |
| Gravenstein          | 110                  | 4/28               | 8/17                   | 8/26                | - 3                |            | + 12        | 9   |       | SSPN          |
| Mother               | 110                  | 5/4                | 8/24                   | 9/4                 | -                  | + 2        | + 9         |     |       |               |
| Orenco               | 110                  | 4/30               | 8/17                   | 8/27                | - 2                |            | + 10        | 8   |       |               |
| St. Edmund's Russet  | 110                  | 4/26               | 8/15                   | 8/25                | - 2                |            | + 12        | 10  |       |               |
| Fall Wine            | 120                  | 4/30               | 8/29                   | 9/8                 |                    |            | + 10        | 10  |       |               |
| Gideon Sweet         | 120                  | 5/3                | 9/1                    | 9/13                |                    | + 2        | + 10        |     |       |               |
| Jersey Black         | 120                  | 4/29               | 8/28                   | 9/10                |                    | + 1        | + 12        | 13  |       |               |
| Milton               | 120                  | 4/28               | 8/27                   | 9/8                 |                    |            | + 12        | 12  |       |               |
| Peck Pleasant        | 120                  | 5/2                | 8/31                   | 9/10                |                    |            | + 10        | 10  |       |               |
| Red Canada           | 120                  | 4/29               | 8/28                   | 9/10                |                    | + 1        | + 12        | 13  |       |               |
| Red Hook             | 120                  | 4/29               | 8/28                   | 9/8                 |                    |            | + 11        | 11  |       | pick hard     |
| Stearns              | 120                  | 5/4                | 9/2                    |                     |                    |            | ---         | --- |       |               |
| Tompkins King        | 120                  | 4/29               | 8/28                   | 9/9                 |                    |            | + 12        | 12  |       | pick before   |
| Wealthy              | 120                  | 4/25               | 8/24                   | 9/6                 |                    |            | + 13        | 13  |       | fully colored |
| Winter Banana        | 120                  | 5/1                | 8/30                   | 9/10                |                    | + 1        | + 11        | 12  |       | to avoid      |
| Cortland             | 125                  | 4/26               | 8/30                   | 9/12                |                    | + 1        |             | 13  |       | water core    |
| Kidd's Orange Red    | 125                  | 4/29               | 9/2                    | none                |                    |            |             | --- |       |               |

<sup>1</sup>SPN: selective picking necessary.

<sup>2</sup>SSPN: several selective pickings necessary.

Table 1. (Cont.)

| Name of Variety       | Days from Full Bloom | Date of Full Bloom | Predicted Picking Date | Actual Picking Date | Adjustment in days |            |             |       | Remarks |
|-----------------------|----------------------|--------------------|------------------------|---------------------|--------------------|------------|-------------|-------|---------|
|                       |                      |                    |                        |                     | Light Crop         | Heavy Crop | Early Bloom | Total |         |
| McLellan              | 125                  | 4/30               | 9/3                    | 9/14                |                    |            | + 11        | 11    |         |
| Patricia              | 125                  | 4/28               | 9/1                    | none                |                    |            |             |       |         |
| Sutton                | 125                  | 5/4                | 9/7                    | 9/18                |                    | + 2        | + 9         |       |         |
| Westfield S N F       | 125                  | 4/30               | 9/3                    | 9/14                |                    |            | + 11        |       |         |
| Blue Pearmain         | 130                  | 4/26               | 9/4                    | 9/16                |                    |            | + 12        | 12    |         |
| Hubbardston           | 130                  | 4/26               | 9/4                    | 9/17                |                    | + 1        | + 12        | 13    |         |
| Rambo                 | 130                  | 4/30               | 9/8                    | 9/20                |                    | + 1        | + 11        | 12    |         |
| Ross Nonpareil        | 130                  | 4/28               | 9/6                    | 9/18                |                    |            | + 12        | 12    |         |
| Tolman Sweet          | 130                  | 5/4                | 9/12                   | 9/22                |                    | + 1        | + 9         | 10    |         |
| Twenty Ounce          | 130                  | 4/24               | 9/2                    | 9/16                |                    |            | + 14        | 14    |         |
| Wolf River            | 130                  | 5/3                | 9/11                   | 9/22                |                    | + 1        | + 10        | 11    |         |
| Bottle Greening       | 135                  | 4/28               | 9/11                   | 9/23                |                    |            | + 12        | 12    |         |
| Red McIntosh          | 135                  | 4/29               | 9/12                   | 9/24                |                    |            | + 12        | 12    | SSPN    |
| Smokehouse            | 135                  | 4/28               | 9/11                   | 9/24                |                    | + 1        | + 12        | 13    |         |
| Wagener               | 135                  | 4/28               | 9/11                   | 9/24                |                    | + 1        | + 12        | 13    |         |
| Fameuse               | 140                  | 4/30               | 9/18                   | 9/28                |                    |            | + 10        | 10    |         |
| Jonathan              | 140                  | 4/29               | 9/17                   | 9/28                |                    |            | + 11        | 11    |         |
| Macoun                | 140                  | 5/2                | 9/20                   | 9/30                |                    | + 1        | + 9         | 10    | SPN     |
| Monroe                | 140                  | 5/1                | 9/19                   | none                |                    |            |             | —     |         |
| Orleans Reinette      | 140                  | 5/4                | 9/22                   | 10/2                |                    |            | + 8         | 10    |         |
| Ralls                 | 140                  | 5/8                | 9/26                   | 10/2                |                    |            | + 6         | 6     |         |
| Spigold               | 140                  | 4/28               | 9/16                   | none                |                    |            |             |       |         |
| Esopus Spitzenburg    | 145                  | 4/30               | 9/23                   | 10/3                |                    |            | + 10        | 10    |         |
| Grimes Golden         | 145                  | 4/30               | 9/23                   | 10/3                |                    |            | + 10        | 10    |         |
| Northern Spy          | 145                  | 5/3                | 9/26                   | 10/6                | 2                  |            | + 8         | 10    |         |
| Baldwin               | 150                  | 4/29               | 9/27                   | 10/7                |                    |            | + 10        | 10    |         |
| Ben Davis             | 150                  | 5/2                | 9/30                   | 10/10               |                    |            | + 10        | 10    |         |
| Lady Sweet            | 150                  | 4/30               | 9/28                   | 10/8                |                    |            | + 10        | 10    |         |
| Red Delicious         | 150                  | 4/30               | 9/28                   | 10/8                |                    |            | + 11        | 10    |         |
| Roxbury Russet        | 150                  | 5/1                | 9/29                   | 10/9                |                    |            | + 10        | 10    |         |
| Swaar                 | 150                  | 4/29               | 9/27                   | 10/7                |                    |            | + 10        | 10    |         |
| Black Gilliflower     | 160                  | 4/30               | 10/8                   | 10/18               |                    |            | + 10        | 10    | SPN     |
| Golden Delicious      | 160                  | 5/3                | 10/11                  | 10/18               |                    |            | + 8         | 7     |         |
| Golden Russet         | 160                  | 4/28               | 10/6                   | 10/18               | - 1                |            | + 12        | 12    |         |
| Lady                  | 160                  | 4/30               | 10/8                   | 10/18               |                    |            | + 10        | 10    |         |
| Rome                  | 160                  | 4/28               | 10/6                   | 10/16               | 2                  |            | + 12        | 10    |         |
| Stayman               | 160                  | 4/30               | 10/8                   | 10/16               | 2                  |            | + 10        | 8     |         |
| White Winter Calville | 160                  | 4/29               | 10/7                   | 10/16               | 2                  |            | + 11        | 9     |         |
| White Winter Pearmain | 160                  | 4/30               | 10/8                   | 10/16               | 2                  |            | + 10        | 8     |         |
| Winesap               | 160                  | 4/30               | 10/8                   | 10/18               |                    |            | + 10        | 10    |         |
| Yellow Bellflower     | 160                  | 4/29               | 10/7                   | 10/17               | 1                  |            | + 11        | 10    |         |
| Yellow Newton         | 160                  | 4/29               | 10/7                   | 10/18               |                    |            | + 11        | 11    |         |
| York Imperial         | 160                  | 4/30               | 10/8                   | 10/16               | 2                  |            | + 10        | 8     |         |
| Granny Smith          | 170                  | 4/29               | 10/17                  | 10/25               | 3                  |            | + 11        | 8     |         |

- (b) Trees in a high state of vigor may extend the time from full bloom a few days.
- 3. (a) Early bloom followed by cool weather during the early growing season has increased the time from full bloom to harvest by 3 to 15 days.
- (b) Weather during the rest of the growing season has not been found to affect the number of days from full bloom to maturity.
- 4. (a) Large apples, whether grown on light or heavy crop trees, have a more critical harvest period.
- (b) Once such apples have reached optimum maturity, there are fewer days in which to harvest for good dessert quality or storage life.
- (c) This is also true of early season apples; but it is less critical with midseason varieties, and winter sorts are still more tolerant.  
(from Rural New Yorker, August, 1957).
- 5. (a) Immature apples have a green ground color similar to leaf color.
- (b) When this turns to light green or cream, the apple is ready to harvest.
- (c) Yellow ground color indicates that it is past optimum harvest maturity. (Yellow varieties such as Yellow Delicious, are an exception, and should have a light yellow color.)
- (d) Disregard skin color. Do not hold for color until over-ripe and mealy.
- 6. (a) Fruit firmness, measured with a pressure tester, is probably the most dependable single index of maturity.
- (b) But it has not proved to be a satisfactory index for the beginning of harvest.
- (c) However, the pressure tester is valuable in determining when certain varieties are becoming too soft on the tree for satisfactory storage, and should be shipped directly to market.
- (d) And it may be used to measure ripening rate.
- 7. (a) These factors that cause variation make selective picking necessary, particularly on some of the home orchard varieties, if all fruit is to be harvested at optimum maturity. Selective picking may extend the harvest period to as much as 20 to 25 days.

R. M. Smock, Cornell University, has commented as follows:

"We can sum up by saying that judging when to pick is still more of an art than a science. There are signs of progress, however. It is worth noting that the 30-40 day period after bloom is the period of cell division in the fruit, hence it is not surprising that temperature may have more effect on the fruit at this time. We can count on considerable more research being done on this aspect of predicting proper picking dates.

"It just seems to me that we must have something more definite than 'days from full bloom,' if we are going to make reasonably accurate prediction dates for harvest. Then, with even our best prediction methods, we probably will still have to watch the fruit on the tree day by day as it approaches full maturation. There could always be that 'unusual year' in which our prediction method doesn't work . . . We are dealing not only with temperature, but climate complexes and interactions that we know little about. We mustn't forget age of tree, soil type, cultural practices and all

the other things that may throw off our prediction standards based on particular trees on a single site."

Each year since 1961 I have noted full bloom dates and predicted maturity dates for as many of the older varieties as I could, arranged by groups for the sake of convenience, then observed and noted during the growing season any of the foregoing factors which might occur to influence the final date. As that date approaches I note ground color, test for pressure, taste for flavor, and change or confirm the predicted maturity dates. My maturity dates are tree-ripe for current use, not for storage. A few baskets of winter sorts are picked a little earlier for common storage in our cold cellar.

One point should be explained clearly—many home orchard varieties require selective picking, and these picking periods overlap. This raises the question—what is the picking date? The answer is perhaps a matter of individual judgement. All apples on a full bearing tree do not reach maturity at the same time. Let's abandon a few terminal apples to the starlings, and use the first real picking from the outside body of the tree. Apples like Chenango and Summer Pearmain would be exceptions, in that the first few apples to ripen would determine the date to begin picking.

Childers wrote in *Fruit Science*, 1949, pp. 178-9, "the number of days from full bloom to picking maturity is rather constant over a wide range of climatic and cultural conditions . . . The results of R. M. Smock at Cornell University might be cited as an example of the fact that this method of determining fruit maturity apparently does not always hold. For over ten years previous to 1945 at Ithaca, New York a range of at least ten days was found from year to year for the period in which McIntosh should be picked. During the 1945 season,

bloom occurred one month early and yet apples were picked within a few days of their usual picking date. In this case the number of days from full bloom to harvest was 154, whereas the average for McIntosh at Ithaca is 127-130 days."

In 1968 we ran into another such year as 1945, and more and more discrepancies developed as the season progressed. I have used the Rutgers factors in attempting to make my adjustments in this difficult year. I think them sufficiently interesting to report in detail for the 90 varieties now in bearing in our orchard.

My soil was the same for all varieties, none were fertilized, none had other than rainwater, all were grown in permanent sod, all were pruned open, all were hand-thinned to 40 leaves per apple; so all these factors were the same within my orchard, and could be regarded as being equal. In short, I grew specimen fruit on trees of moderate vigor as a hobby, not production fruit for tonnage. Our result is a smaller, more highly colored, highly flavored dessert fruit, more so than as grown in the commercial orchards of New Jersey.

With these factors eliminated, I selected light crops, heavy crops, and early bloom followed by cool weather, as the remaining Rutgers factors which would affect our 1968 picking dates. I went one step further, and split "early bloom followed by cool weather," into before bees, and after bees. Each subsequent year, and each welcome adjustment, should bring a better relative table of days from full bloom. A fixed table of calendar picking dates is impossible.

It seems to me that when very early bloom is followed by cool wet weather with no bees for pollination, each of these first days is an entire day lost with no fruit set. If 15 days is allowed for Red Astrachan after reaching full bloom on April 22, some other variety

that didn't bloom until April 25 should be allowed three days less, and so on, until the bees arrive and pollination begins. After that, a process of growth begins, which could be retarded by low temperatures during the 30-40 day period of cell division.

In other words, the need for allowance after early bloom may be 100% at first, then, after pollination has occurred, becomes a lesser percentage lost due to slower growth in cool weather. By this reasoning, Ralls which did not bloom until May 8 would only be entitled to about a six day allowance for retarded growth. I have estimated each early allowance in this manner.

Red Astrachan usually blooms here May 10 to 20, but this year it was April 22. Then came the cool weather, and bloom hung on the trees for several weeks, with no bees during the early part of this period. Pollination was correspondingly delayed, and subsequent growth was slowed during the 30-40 day period after growth began. Red Astrachan was not judged picking ripe until July 25. The maximum allowance of 15 days, plus 4 days for heavy crops, leaves 5 days unaccounted for. Recommended: revise from 70 to 75 days after full bloom.

Another revision was Lodi. Previously assigned 90 days, its full bloom date this year was April 26, for a predicted picking date of July 25. Yet its actual picking date turned out to be July 25. Its proportionate early allowance would be 12 days, plus 3 days for heavy crops, for a total of 15 days. Tukey, in Dwarfed Fruit Trees, gives 76 days average time for Lodi in the latitudes of western New York and central Michigan. Recommended: revision from 90 to 75 days.

After making these changes, all the 70-110 day groups are pretty much in step within their groups, and between groups.

In the mid-season groups of 110 to 135 days, Mother is moved up from 120 to 110 days, and Blue Pearmain is moved back from 120 to 130 days. Granny Smith, from N.Y. Agr. Exp. Sta., was planted here in 1957 but did not fruit until 1965, and then only an apple or two. A nursery catalogue listed it as mid-season, so I tentatively grouped it with our 130 day varieties. This year it began to bear enough apples to make a decent test. On October 25 I checked it as ripe for picking, and changed the classification to 170 days + 8 days for 1968 adjustments. Will check this again closely in 1969.

Stearns, from N. Y., also fruited for the first time in 1967. Revised to 120 days, in expectation of picking here during the first half of September. Will check this also in 1969.

With these exceptions the ripening dates of the others in the 110-135 day groups are in step within their groups, and between groups.

The late season groups of 140-170 days carry revisions of Baldwin from 140 to 150 days, and Golden Russet and Lady from 150 to 160, in addition to Granny Smith, already mentioned as moved up from the mid-season group. The ripening dates of the others are pretty much in step within their groups, and between groups.

It looks as though we are beginning to develop our own standards for the old varieties, as predicted by Mr. Ryall in 1956.

## Old Apple Varieties

Old apple varieties and their value to the breeder are discussed the Great Lakes Fruit Growers News, Feb., 1966. Although 917 apple varieties are still being grown in northeastern U.S., very few are available to the public. The N. Y. Agr. Exp. Station at Geneva maintains a collection of 700 apple varieties, probably the largest in the world.