

## How About the Butternut?

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The purpose in presenting this paper is to summarize what is known about the butternut in the light of my own experience, and to find out from you in discussion what additional facts are available and what some of the problems in the culture of butternuts may be. A good summary by S. H. Graham is to be found in the 34th Annual report of the Northern Nut Growers Association, and short reports appear elsewhere. In general, however, judging from the proceedings of this Association, the butternut has not received much attention through the years. The lack of interest in the butternut indicates unsatisfactory experience with this nut on the part of those who have tried to grow and to use it. An analysis of its good and bad characteristics is in order.

Of all the species of nuts with which the Association is concerned, the butternut is the most hardy and the most likely to succeed on poor soil. In general, the trees are easy to transplant, are early bearing, sometimes within two years from the graft, and are easy to grow. The flavor of the butternut is very distinctive and palatable, and usually much more flavorful than similar nuts derived from the Japanese butternut and the heartnut. Some people consider the butternut flavor the best of all nuts.

On the other hand, the butternut

has a reputation of being short lived because of susceptibility to various diseases. The seedling trees which are usually sold are slow in bearing. The common wild nuts are hard to crack with a hammer, and the better named varieties are not well known or widely grown. The trees also have a reputation for being difficult to propagate. Of these faults, probably the difficulties of propagation and cracking are the most important in restricting its use.

Botanically the butternut (*Juglans cinerea*) belongs to a group of species within the genus *Juglans* that bears its fruit in long clusters or racemes, as contrasted with the walnut group which bears nuts singly or in clusters of two or three. The butternuts also have the fruit and leaves covered with sticky hairs instead of being smooth. The group is further characterized by having a cushion of hairs above the leaf scars and pointed terminal buds on the twigs. Other species within the group are the Japanese butternut *J. Sieboldiana*, its variety *cordiformis*, the heartnut, and several less well known species including *J. mandshurica* and *J. cathayensis*, both native to central Asia. These closely related species apparently hybridized with each other, but accurate information as to the nature and extent of such hybridization is not available.

The natural geographical range of the butternut covers a broad area of Northeastern North America, extending from New Brunswick southward to the mountains of Georgia and westward to Western Ontario, Dakota, and Arkansas. In this range it is most frequent in calcareous soils, reaching its best development in rich woodland, but persisting on poorer upland soils also. It thus has the most northern range of our native nut species, along with the Pignut, *Carya glabra*, and one species of hazelnut, *Corylus rostrata*. The other related species are of variable and uncertain hardiness and are not reliable in this northern range.

It is recognized that the butternut has little commercial value except as it is used in the New England states, particularly in Vermont, where it is combined with maple sugar in making maple-butternut candy. Anyone who has traveled through the New England states is familiar with the roadside advertising of this excellent product. On the general market, butternut kernels are not sold in quantity comparable to those of the black walnut, but are somewhat comparable to the kernels of the hickory which also do not have a commercial outlet except locally.

The greatest use of the butternut is, and will continue to be, for the home grounds and local consumption. I think it is highly probable that if the easy cracking varieties

already named were better known, they would be much more widely planted. The common wild butternuts are really difficult to handle. They crack only after considerable hammering with a heavy hammer and then, when cracked, the kernels shatter to such an extent that recovery is very unsatisfactory for the labor expended. After butternuts have been gathered from the wild with some enthusiasm during the fall months, they often remain in the cellar or attic without ever being used. Even the squirrels and the rats will not go to the bother of extracting the kernels if other nuts are available.

For best results the nuts are usually cracked with a heavy hammer, the nut being held vertically against a solid vise or block, so it can be hit on the end. A glove to protect the fingers holding the nut is useful if many are to be cracked. Good results can be secured by holding the nut on its side and tapping it on the suture. This, however is difficult, as it necessitates shucking the nut and even then it is difficult to identify the suture.

Through the years many varieties of butternut have been named. Mr. R. L. Watts in the 35th annual report of the Association lists 26 names, and I am sure there are others. I personally have had experience with only three or four varieties. One of these, the Crax-ezy, has borne good crops and the nuts crack well. Another one, which I have named the

Johnson, coming from Tonawanda, New York, cracks well but is a smaller nut. At one time I had Thill variety topworked on *Juglans Sieboldiana* stock, but the stock was killed by cold winter. Samples of Kinnyglen and Mandeville were furnished by Mr. Graham for testing. We do not, however, have any comparable rating of many varieties based on comparative tests, nor are there recognized standards of quality.

In order to set up standards of quality for butternuts, the following tentative schedule for judging has been worked out along the same lines as the schedule for judging black walnuts. Twenty-five nuts are used in a sample and the score is made up of the weight in grams of the kernels recovered on the first crack, plus total weight of kernels divided by 2, plus 1/2 point for each whole half kernel recovered. A nut should not be considered worthy of propagation unless practically all of the kernels come out in whole halves.

In this schedule the crackability of the sample is measured by the weight of first crack and the number of halves. The yield of kernels is measured by the total weight of kernels in the sample. The first crack includes only those kernels that either fall out or can be removed easily with the fingers. The remaining kernels are rescued with a pick or by recracking. In my judgment, the score accurately measures

**Proposed Schedule for Testing**

**Butternuts**

25 Nut Samples

$$\text{Score} = \text{Wt. kernels first crack} + \text{total wt. kernels} \div 2 + \text{no. whole halves} \div 2.$$

Variety	Weight Kernels 1st crack Grams	Total Weight Kernels Grams	No. Halves	Score
Kinnyglen	52.0	57.5	36	98.8
Crax-ezy	48.0	56.0	44	98.0
Mandeville	53.6	66.0	10	91.6
Johnson	38.5	45.5	40	81.3
Seedling No. 1	36.5	45.0	7	62.5
Seedling No. 2	26.0	43.0	22	58.5
Seedling No. 3	20.0	44.5	10	47.3

the merit of the samples. In the Mandeville, the large size is measured by the weight of kernels which in part offsets poor cracking quality. Poor cracking is usually caused by the edges of the halves being curved so as to be bound in the shell. Much more testing should be done to determine the value of the schedule.

Opinions regarding the ease of propagation of the butternut differ, but mostly it is considered difficult to propagate, with often complete failure. This merely means that the matter is not well understood. In my own experience I have had just about as many failures as successes, and must confess that I do not have much idea of what has been responsible for either success or failure. Best results have been secured by using inlay or bark slot grafts on stubs about 2 inches in diameter. This agrees with the experience of Mr. Burgart, of Michigan, and Mr. Weschcke, of Minnesota, who report

that grafts must be made several feet from the ground and not at the crown.

Shield budding has apparently not been satisfactory. Mr. D. C. Snyder writes that chip budding is more successful. It is recommended by others and I agree that grafting should be done early, just as growth starts rather than later when trees are in leaf. Special care must be used in tying the new shoots of the graft to braces to prevent breakage by wind or birds. The butternut wood is very brittle and the grafts are often lost by breakage. The whole matter of butternut propagation merits further careful study.

Butternut varieties may be grafted on black walnut, butternut, or *J. Sieboldiana* stocks. Mr. Burgart, Mr. Wescheke, and Mr. D. C. Snyder consider black walnut to be better than the others, giving a more vigorous long lived tree. Varieties on butternut stocks are apparently relatively short lived and *J. Sieboldiana* stocks have a different growth rate and are not as hardy. Mr. Burgart uses bark slot grafts on black walnut seedling stocks, 2 - 3 years old.

Butternut trees on their own roots transplant relatively easily because there is no taproot as with the black walnut and the hickory, and there are many fibrous roots that can be lifted when the tree is dug. Black walnut stocks are not difficult to manage, particularly if the taproots are cut on the seedlings. Culture is

no special problem. Mulching and supplying nitrogenous fertilizer is good practice.

The butternut has the reputation of being susceptible to disease and hence being short lived as a tree. Whether or not this is actually the case is perhaps questionable. Many butternut trees, particularly those in favorable situations of soil and moisture, live to be of large size and old age. Trees on poorer, thinner soils apparently die off earlier than those under better conditions. In any case, it is well recognized that the butternut has a shorter life span on the average than the black walnut, which frequently lives to a large size and old age. There are two common diseases of the butternut. One is leaf spot cause by the fungus *Marsonia*, which defoliates the trees fairly early in the season and probably predisposes them to injury from other fungus attack. This is the same leaf spot that attacks the black walnut leaves. The other disease, which may cause trouble, is a fungous walnut blight known more specifically as *Melanconis blight*. It has not been established that this disease is an active parasite. The evidence indicates rather that it attacks trees that are already somewhat weakened by defoliation or other injury. It is a fact that many of the dead limbs on butternut trees are found to be affected with the disease. It is a matter of observation that trees growing under favorable conditions are less

damaged by the disease than those growing under poor conditions of soil and water, therefore, keeping trees vigorous is good practice.

As with other nut tree species, there are troublesome insects. One of these, the butternut snout beetle or curculio, attacks both the butternut and the Japanese walnut. Control has apparently been secured by dusting foliage with DDT. Sometimes the leaves of butternuts are badly distorted with galls caused by mites. The bunched top or witches'-broom caused by a virus, that is serious on the Japanese walnut, *Juglans Sieboldiana*, does not appear to be so virulent on butternut. This, however, is a matter of personal observation and is not based on a thorough study.

In conclusion, let me say that in my judgment, the butternut is worthy of more attention than it has so far received, particularly by home owners in the northern states who would like to have trees in their yards that will bear nuts under conditions that are unfavorable for most other kinds. If it were publicized that varieties are available that will crack out in halves with relatively little effort, the chances are that with these facts in mind those interested in nut trees would give the butternut much more attention. The difficulty at the present time seems to be related to a lack of knowledge as to the relative merit of different varieties and a scarcity of trees because of difficulty of

propagation. If we have time and the chairman will permit, I would welcome comments on the propagation problem and would also like to obtain any information on the merit of the named varieties. Let me also state that if any of you have a sample of 30 nuts of any named variety in this or last fall's crop that you can spare, I would be much pleased to have you send it to me for testing.—Reprinted from 41st Annual Report of the Northern Nut Growers Association (1950 meeting.)

### Some New Apple Varieties Aren't Better Than Old

After several years of testing at the Experiment Station orchards in Madison, several of the newer varieties of apples haven't shown enough superior qualities to take the place of some of the older varieties that have become well established in the state.

They are Carpenter Seedling, Early McIntosh, Goodhue, Iowa Brilliant, Mac Early, Mendel, Ogden, Orenco, Patricia, Petrel, Rainier, Red Sauce, Skillet Creek, Thurso, Van Buren Duchess, and Young America Crab.

Although these varieties have some good qualities, horticulturists aren't recommending them for general planting in the state.—From "What's New in Farm Science," 1951 (Wisconsin Experiment Station.)