

Idaho. The overcolor is pale bluish purple; the undercolor maroon or slightly lighter. The suture is a fairly wide, distinct, grayish line. The skin is moderately thick and tough. The flesh is slightly fibrous, (scarcely detectable in the fresh fruit), exceedingly juicy, tender, sweet, and excellent in quality. The

flesh color is about that of raw sienna. The pit is clinging or semi-free. The fruit adheres well to the tree even when fully ripe. The cooked fruit of Reine Red, while perhaps somewhat more fibrous than that of Reine Claude, has excellent flavor and a rich, orange color.

Editor's Note: We have the assurance of the author that budwood or scions of Reine Red will be available as long as they last, to interested experiment stations, growers, or nurseries.—Ed.



A Genetic Bud Mutation in the Pear

By F. C. REIMER, Medford, Oregon

An orchard of Bartlett pears, owned by A. D. MacKelvie of Zillah, Washington, and planted in 1913, produces typical fruit of this variety with the exception of one small branch on one tree. A bud mutation appeared in 1938 on one of these trees as a small lateral branch approximately seven feet above the base of the tree. The remainder of this large framework branch produces typical fruit above and below the mutation.

This mutation, which has been named Max-Red Bartlett, produces reddish shoots and leaves and dark red fruit. The young fruit develops this unusual color immediately af-

ter blooming and maintains it throughout the season. As the fruit ripens after picking the color changes to an attractive bright red color. In size, form, and flesh the fruit is typical of the Bartlett parent. Many trees have been propagated by budding, reproducing the mutation true to type.

The red color of the bark extends at least three cell layers deep below the epidermis.

I have used this mutation extensively in breeding work, and have found it to be genetic in character. That is, it will transmit its characteristics to a large percentage of its seedlings.

Before presenting the breeding results it must be stated that Bartlett and most other varieties of pears are practically self-sterile, and will seldom produce any seed unless fertilized with pollen of another variety. Hence, no selfed seedlings are available for study.

It is evident (Table I), that the parent Bartlett produces only green seedlings whether open pollinated or used as a male parent crossed with Comice. The Max-Red Bartlett from open pollinated seed produced 43.7 percent red seedlings. Max-Red Bartlett x Comice produced 56 percent red seedlings, while Comice x Max-Red Bartlett produced 54 percent red seedlings. In contrast, Comice open pollinated produced only green seedlings.

It is most evident from these results that the Max-Red Bartlett transmits the red color of the leaves and bark to a high percentage of the seedlings when used either as the female or male parent.

These seedlings are only one year old, hence none has fruited. Every

effort is being made to bring them into fruiting as quickly as possible. However, since the red color of the Max-Red Bartlett fruit is correlated with the red color of the leaves and bark it is highly probable that these red seedlings will also produce red fruit.

The Max-Red Bartlett is a very vigorous grower, fully equal to Bartlett in this respect. However, most of the red seedlings of the Max-Red Bartlett are considerably smaller than the green seedlings produced by this variety and the Bartlett. Fortunately a small percentage of these red seedlings are as vigorous and as large as the green seedlings.

Since the above manuscript was prepared I have found another red pear, which originated as a bud mutation, is also genetic. This variety, known as Royal Red Hardy, originated as a bud mutation on a Beurre Hardy tree in an orchard owned by Mr. V. A. Silvera of Milpitas, California. This mutation produces fruit entirely covered with dull red, and the young shoots, at least in the early stages of growth, have reddish bark and leaves. The Beurre Hardy parent produces greenish-yellow fruit with green leaves and bark.

I now have numerous young seedlings (from open pollinated seed) of both the parent Beurre Hardy and the mutation. All the Beurre Hardy seedlings have green leaves and stems, while forty-two percent of the Royal Red Hardy seedlings have red bark and reddish leaves.

TABLE I. Breeding Results of Max-Red Bartlett.

Parentage	Total number of seedlings	Red seedlings	Green seedlings
Bartlett, open pollinated	23	00	23
Max-Red Bartlett, open pollinated	48	21	27
Max-Red Bartlett x Comice	41	23	18
Comice x Max-Red Bartlett	189	102	87
Comice x Bartlett	132	00	122
Comice, open pollinated	50	00	50