

# Apple Variety Evaluation—A Never Ending Challenge

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Man has been propagating apples by budding or grafting for over 2,000 years. Until he learned this horticultural ability, a favorite fruit existed only as long as the tree lived.

History records Alexander the Great as one of the first worldly travelers to collect and transport superior fruit trees; however, history does not reveal the first person to successfully propagate an apple tree by grafting.

Propagation of apple varieties in America did not gain much importance until commercial nurseries became established about 200 years ago. The competitive search for a better apple to improve a nursery's standing started a parade of new apples that still continues today.

These new apples hold their place until a better one comes along. Today the 'Red' and 'Golden Delicious' have reached top position as the best fresh eating apples grown in the Pacific Northwest. 'Golden Delicious' has become important throughout the entire world. This variety is the most planted, the most researched, and most discussed apple in the world.

## 'Golden Delicious', Queen of the Yellow Apples

Because 'Golden Delicious' has been accepted as the highest quality yellow apple in the majority of world markets, apple growers everywhere have planted this popular variety. But, due to climatic differences, only a few districts in the world produce the high quality found in the valleys of central Washington state.

Thus, a firm market is established for the 'Golden Delicious'. Throughout the apple growing areas of the world, growers are searching for a russet-free 'Golden Delicious' apple.

Henry Miller, apple grower in Virginia, has offered a reward of \$2,000 for a russet-free 'Golden Delicious'. As of today, he has not paid the reward, and I know of no apple that would qualify for the payment. A true russet-free mutant of 'Golden Delicious' could conceivably occur. Such genetic variation would develop a thicker, more protective layer of wax on the skin. Such a mutation would likely never be discovered in the Northwest. It is more apt to be recognized in an area where 'Golden Delicious' russets freely. This actually did occur in Michigan bringing about the introduction of 'Smoothee'. It is not completely russet-free under adverse conditions, however, it is worthy of trial or commercial planting by growers concerned with russeted fruit. The search for a russet-free 'Golden Delicious' apple is still on.

In Washington, we find mutations of 'Golden Delicious' occasionally causing MORE and in some cases complete russetting. Thus we know the genetic factors responsible for the protective wax layer are susceptible to change. But this is only one of the several faults of this variety. Other faults include bitter pit, biennial bearing, bruise susceptibility, and short storage life.

It is more likely a russet-free 'Golden Delicious' will come from a new seedling—whether by pure chance, such as the original, or through a carefully managed breeding program. From all over the world comes a family of new Golden-like seedlings to challenge the true 'Golden Delicious'.

It is fascinating to watch the never-ending parade of new apples from year to year. Fortunately, in the U.S. we have many research stations as

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well as private individuals who are continually picking up new varieties and strains to evaluate.

A quick negative judgment can be made on many of these newcomers because 'Golden Delicious' quality is so high. There are many new ones, however, that merit a fair test before condemning them.

What's your market potential for an early Golden-like apple harvestable in August? Would a better keeping late strain of 'Golden Delicious' help spread your harvest and ease the marketing glut?

You can test these new ones as whole tree pollenizers in your orchard. Or, if it's not a good pollenizer and you don't want to risk so much bearing surface, confine them to a single limb.

'Ozark Gold' is the earliest Golden-like commercially acceptable yellow apple. It was developed in an apple breeding program at the Missouri State Fruit Experiment Station near Mountain Grove and introduced in 1970.

This apple is also noted for its attractive bronze blush (in Washington) and its rich aromatic flavor. Ripening a week to 10 days ahead of 'Golden Delicious', 'Ozark Gold' could easily be distinguished from 'Golden'. It should be commercially acceptable on its own merits for the early market. It is not a late keeper.

'Ozark Gold' appears to bloom three or four days after the first king bloom of 'Delicious'.

From the Yakima Valley, came the new chance seedling 'Prime Gold'. It was given extensive promotion by the discoverer, Bud Hoekman of Zillah. In a sincere effort to show proof of their faith in this new apple, he planted 100 acres in one solid block. The promotion created much interest throughout the eastern apple states as well as in Europe. Our official statement on 'Prime Gold' was, "try it, you *may* like it." From the very beginning it drew mixed reactions.

Most people report disappointment in misshapen fruits, *below* 'Golden Delicious' eating quality as well as storage and shipping disorders.

'Prime Gold' is a firm, waxy, clear-skinned yellow apple. It develops a very attractive red blush in some high elevation districts. It is a late bloomer and would miss the king bloom of 'Red Delicious' most years. Tests show its pollen is compatible for 'Delicious'. 'Prime Gold' ripens about a week ahead of 'Golden Delicious'.

'Blushing Gold', a chance seedling found in Illinois 14 years ago, is gaining some recognition. It is similar to 'Golden Delicious' but differs in being more acid, firmer, but smaller than 'Golden Delicious', and matures about one week later with a prominent bronze blush. It is being tested throughout all apple growing districts in the U.S. It is gaining rapid attention with such statements from prominent growers as "better than Golden," "a Golden with all its faults removed," "a better keeper and easier to handle." At Yakima it is ready for harvest about a week after 'Golden Delicious'.

From Switzerland comes a new Golden-like apple named 'Maigold'. Specifically developed through the Swiss Research Station at Wädenswil, 'Maigold' was chosen from a cross of 'Golden Delicious' x 'Franc-Roseau'.

Commercial trials in Switzerland of 'Maigold' have upheld the researchers' predictions that it is a superior-type late 'Golden Delicious' type. It has a bright red blush, lightly striped. Its greenish background color at harvest turns to golden yellow by December. It stores well until summer.

From Georgia comes another seedling of Golden parentage appropriately named 'Magnolia Gold' and is being promoted throughout the Appalachian district as a russet-free 'Golden Delicious' type.

'Criterian' is a new seedling yellow apple found in 1966 by Frank Crites near Parker, Washington. It is as-

sumed to have both 'Red' and 'Golden Delicious' in the parentage. The best way to describe 'Criterian' is to say it is an albino standard 'Delicious'. But then we must add, it picks later than 'Delicious'—more in the 'Rome' season. As of today, 'Criterian' is certainly one of the most exciting new 'Golden Delicious'-like apples. It has three definite factors in its favor, namely, good fruit size, long type, and good flavor. Preliminary tests by Everett Brandt at Parker indicates excellent productivity and long keeping ability.

Japan grows 160,000 acres of apples which is more than found in Washington, Oregon, and Idaho combined. The Japanese apple breeding research stations have produced several new apple varieties.

'Mutsu' is the first Japanese apple to gain some worldwide attention. It is a high quality, long keeping 'Golden Delicious'-like apple with excellent size and good annual production. Being a triploid, 'Mutsu' cannot be used as a pollenizer for 'Delicious'.

'Mutsu' is doing very well in England in their cooler climate. The English like it well enough to change the name to 'Crispin' and hope to com-

pete against European Golden in the common market.

Several Washington growers are testing 'Mutsu'. It draws lots of praise but no takers for commercial plantings as yet.

'Fugi', another Japanese variety, was named in 1962 after 22 years of tests. It is a roundish, elongated apple with red stripes similar in appearance to standard 'Delicious' as grown in Japan. 'Fugi' brings Japanese growers consistent top money in their market.

'Tohuku No. 3' was recently named 'Prime Red' by the Japanese. This high quality red apple looks good to early U.S. testers. "Try it, you *may* like it."

And thus the list swells each year. Still being evaluated are 'Summer Gold', 'Sun Gold', 'Honey Gold', 'Thewgold', and 'Sinta'. The latter one is from the apple breeding research at Summerland, B.C.

Whether or not any of these "Golden contenders" will de-throne the true 'Golden Delicious' is anyone's guess. It took 'Golden Delicious' 30 years to gain its commercial perch of acceptability and it is very likely to remain an important variety for many years to come.

## C. Ray Ure (1907-72)

Dr. C. R. (Ray) Ure died of an apparent heart attack on November 5, 1972. He was born November 9, 1907, Delburne, Alberta, Canada. Immediate family surviving include a son, Mr. Kenneth R. Ure, and daughters Mrs. Joan Allison and Mrs. Shirley Sullivan. Prior to joining the faculty at Colorado State University, Dr. Ure was Head, Fruit Crops Research, Experimental Farm Service, Canada, Department of Agriculture at Morden, Manitoba. He joined the Colorado State University staff in March, 1962,

and had served as Superintendent of the Western Slope Branch Station, Grand Junction, Colorado. Dr. Ure received the rank of Horticulturist and Professor in July, 1969.

His professional contributions included work in the areas of fruit breeding, cultivar evaluation, clonal rootstocks, chemical control of tree growth, frost protection, and general cultural practices. His most recent research report was published in the January, 1973, *Fruit Varieties Journal*.