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The 'Jonathan' Apple and its Progeny

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The 'Jonathan' apple is considered a seedling of 'Esopus Spitzenberg,' an apple described by Beach as the standard of excellence for apples in the 'Baldwin' class (1). 'Jonathan' came into being as a seedling find with outstanding fruit quality characteristics acquired from its maternal parent and an unknown pollen source. For awhile, after being discovered on the farm of Mr. Philip Rick near Woodstock, Ulster County, New York, it was known colloquially as 'Esopus Spitzenberg New' or 'Ulster Seedling.'

The first description of 'Jonathan' appeared in an 1826 article published by Judge J. Buel who, in 1829, gave the name to this cultivar as a compliment to Jonathan Hasbrouck who had called Judge Buel's attention to this fine apple (1, 3).

Subsequently, 'Jonathan' assumed a prominent role in the U.S. apple industry and in other countries around the world. At the turn of the century, the 'Jonathan' cultivar ranked 6th in the U.S., behind 'Baldwin,' 'Ben Davis,' 'Northern Spy,' 'Rhode Island Greening' and 'Winesap,' in importance among commercial apples (5). With the possible exception of 'Winesap' all of these cultivars have become insignificant, yet the 'Jonathan' remains an important commercial apple. Through the 1920s, 'Jonathan' accounted for about 10% of U.S. production. This figure declined to 6% during the 1960s (5). The 1987 'Jonathan' crop estimate of 10,000,000 bushels, represents a slight increase in production, although it is only 4% of the record 1987 apple harvest.

The 'Jonathan' tree has many attributes. It is adapted to a wide range of climate and soil conditions and is said to succeed wherever grown (3). It is most compatible in Ohio, Missouri, Arkansas, Pennsylvania, Virginia and the irrigated regions of the West. Fruit sizing and cold hardiness are limiting factors in more northerly regions. The tree is not considered a heavy producer; yet it is known for precocity, annual production, a degree of self fruitfulness, and reliability of production under adverse conditions (2, 4, 5). Trees, described as moderately vigorous, thrive best on fertile soils and under the best cultural practices. Abundant annual growth, through somewhat thin and frequently growing back into the tree, produces a tree with a dense rounded canopy (1, 5).

The 'Jonathan' fruit has been definitively described and characterized. Its admirable attributes may be summarized as "beautiful," "brilliant," "having a sprightly vinous flavor" and "possessing excellent culinary and desert qualities" (1, 3).

The 'Jonathan' cultivar is not without weaknesses. The tree is well-known for its susceptibility to fire blight (*Erwinia amylovora* Burr.), both twig and blossom form, cedar apple rust (*Gymnosporanuium juniperivigi-nanae* schw.), powdery mildew (*Podosphaeda leucotricha* Sal.), bitter rot (*Glomerella cingulata*), and to a lesser extent, apple scab (*Venturia inaequalis* Cke.) (1, 5). These diseases, if not managed effectively, lead to low grade, uneven, irregular and/or small fruit (4). The plum curculio (*Conutrachelus nenvphar* Habst) also has an affinity for the 'Jonathan.' The fruit has several failings that have prevented the 'Jonathan' from becoming a more important commercial cultivar. Fruit

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Table I. Cultivars with 'Jonathan' as the female (seed) parent.

Cultivar Name	Pollen parent	Year introduced[v]	Harvest season[z]	Place of origin	Literature source	Germplasm inventory listed[y]
Akane	Worcester Permain	1953	ahead	Morioka, Japan	1, 6, 21	x
Alps-Cotone	Fugi	?	?	Nagano, Japan	1	
Ancuta	Sugag	?	?	Romania	16	
Agori #1	McIntosh	1953	after	Aomori, Japan	21	
Ardelan	Peasgood	?	?	Romania	16	
Chieftan	Delicious	1966	with	Ames, Iowa, USA	22	x
Choko 64	Terry	1976	after	Nagano, Japan	21	
Delia	Wagener	?	?	Romania	16	
Falticeni	Wagener	?	?	Romania	16	
Frumos De Voinesti	Belle De Boskoop	1980	with	Romania	16, 19	
Fukutami	Ralls Janet	1974	after	Aomori, Japan	10, 21	
Gosho	N. Spy	1925	with	Aomori, Japan	21	
Hakko	N. Spy	1925	after	Aomori, Japan	21	
Hatsvaki	Gold. Del.	1976	with	Morioka, Japan	1	
Hirano	N. Spy	1925	with	Aomori, Japan	21	
Holly	Delicious	1971	after	Wooster, Ohio, USA	2	
Idared	Wagener	1942	just after	Mosion, Idaho, USA	10, 22	x
Jonadel	Delicious	1958	with	Ames, Iowa, USA	10, 22	x
Jonsib	Ikutsk	1938	?	Brookings, SD, USA	22	
Jonwin	Baldwin	1944	ahead	Ettersburg, CA, USA	22	x
King David	Ark Black	1902	after	Durham, AR, USA	10	x
Lucullus	Cox's Orange	1955	after	Wageningen, Netherlands	10	
Majda	Golden Nobel	1986	just after	Maribor, Jugoslavia	17	
Melrose	Delicious	1944	after	Wooster, Ohio, USA	10, 22	x
Mimi	Cox's Orange	1935	after	Wageningen, Netherlands	10	
Monroe	Rome Beauty	1947	after	Geneva, NY, USA	10, 20, 23	x
Murasaki	Delicious	1948	after	Aomori, Japan	10	
Mutsu[x]	N. Spy	1939	?	Aomori, Japan	21	
President Boudewijn	Cox's Orange	1952	after	Wageningen, Netherlands	10	
Prime Red (Akane)	Worcester Permain	1970	ahead	Morioka, Japan	1	x
Prins. Bernhard	Cox's Orange	1935	after	Wageningen, Netherlands	10	
Prinises Irene	Cox's Orange	1935	after	Wageningen, Netherlands	10	
Prinses Margriet	Cox's Orange	1955	after	Wageningen, Netherlands	10	
Prinses Marijke	Cox's Orange	1952	with	Waheningen, Netherlands	10	

Table I. Continued.

Cultivar Name	Pollen parent	Year introduced[V]	Harvest season[Z]	Place of origin	Literature source	Germplasm inventory listed[Y]
Rosu de Cluj	Senator	?	after	Romania	16	
Sayaka	Sekai-Ichi	1984	just after	Nagano, Japan	1, 21	
South Dakota Ben	Tony	1938	after	Brookings, SD, USA	22	
South Dakota Bison	(M. Bacatta Yellow Trans)	1933	?	Brookings, SD, USA	22	
South Dakota Bona	Sylvia	1938	after	Brookings, SD, USA	22	
South Dakota Eda	Tony	1940	after	Brookings, SD, USA	22	
Tsugaru[W]	N. Spy	1925	after	Aomori, Japan	21	

[Z]Estimated harvest in relation to Jonathan season.
[Y]North American and European fruit and tree nut germplasm inventory. 1981 USDA Misc, Pub. 1409.
[X]Different from Mutsu, which is a Golden Del hybrid.
[W]Different from Tsugaru, which is a Golden Del Op seedling.
[V]It was not possible to find dates of introduction for all cultivars.

sizing is a major problem except when grown under the best management. The fruit is subject to poor finish, principally russet, because the skin is sensitive to early season low temperature and the fungicides needed for disease control (5). A serious fruit shortcoming is that the 'Jonathan' does not store well, although Missouri 'Jonathans' harvested in 1903 were cited for excellent in flavor and appearance when exhibited during August at the 1904 St. Louis Louisiana Purchase Exposition (4). Fruit harvested at an advanced maturity, when overcolor is at its best, is subject to a physiological disorder called Jonathan Spot. This disorder can be checked by holding fruit at temperatures below 1.6°C (35°F); however, soft scald, another physiological disorder, develops whenever 'Jonathans' are stored below 2.2°C (36°F) (6). The development of CA storage has alleviated the dilemma of these two storage disorders.

The very admirable characteristics of wide geographic adaptation, reliable production and excellent table and market qualities have resulted in the use of 'Jonathan' as parent of choice by fruit breeders around the world. As a consequence, numerous new cultivars with a strong 'Jonathan' genetic background have been developed and introduced over the past 75 years.

A compilation of information from references and personal communications with apple breeders is presented in the tables. The harvest season, in some instances, is an estimate in relation to a 'Jonathan' harvest. The necessity to make an estimate points to the fact that cultivar descriptions notably lack this information or do not reference the harvest time to a standard cultivar. Tables I and II list named cultivars in which the 'Jonathan' served as seed or pollen parent. Table III lists the 'Jonathan' mutations, selected primarily for improved or early color development. Cultivars noted in Table IV are newer hybrids with 'Jonathan' background.

Obviously not all the cultivars have become apples of note, many have only local acceptance. Some have not survived the test of time, and others have not been fully assessed. What is important and evident is that the 'Jonathan,' which carries 'Spitzenberg' quality and excels its parent (1), is a

Table II. Cultivars with 'Jonathan' as the pollen parent.

Cultivar Name	Female seed parent	Year introduced[v]	Harvest season[z]	Place of origin	Literature source	Germplasm inventory listed[y]
Appel van Paris	Barbant	1935?	after	Wageningen, Netherlands	10	
Aromat de Vara	Parmain D'or	?	before	Romania	16	
Conrad	Ben Davis	1935	just after	Mt. Grove, MI, USA	22	x
Crandall	Rome Beauty	1952	?	Urbana, IL, USA	22	x
Directeor van de Plassche	Cox's Orange	?	before	Wageningen, Netherlands	10	
Faurot	Ben Davis	1935	after	Mt. Grove, MO, USA	22	x
Florina (Querina)	(complex hybrid)	1977	after	Angers, France	8, 18	
Fyan	Ben Davis	1920	after	Mt. Grove, MO, USA	22	x
Himekami	Fuji	1984	with	Morioka, Japan	1, 9	
Holiday	Macoun	1964	after	Wooster, Ohio, USA	10, 22	x
Idajon	Wagener	1949	before	Moscow, ID, USA	10, 22	x
Iwakami	Fuji	1984	with	Morioka, Japan	9, 21	
Joan	Anisim	1932	?	Ames, Iowa, USA	22	x
Jonagold	Golden Del	1968	after	Geneva, NY, USA	13, 22, 23	x
Jonagram	Ingram	1956	with	Mt. Grove, MO, USA	22	x
Jonalicious	seedling, unknown parentoue	1960	with	Abeline, TX, USA	14, 22	x
Jonamac	McIntosh	1972	before	Geneva, NY, USA	11	x
Jono	Summer Champion	1972	before	Stillwater, OK, USA	3	x
King Cole	Dutch Mignone (possible reverse cross)	1912?	after	Victoria, Australia	10	x
Kogetsu	Gold. Del.	1968	before	Aomori, Japan	1, 9, 21	
Lonjon	London Pippin	1975	before	Maribor, Jugoslavia	17	
Malling Kent[x]	Cox's Orange	?	?	East Malling, England	15	x
Megumi	Ralls Janet	1950	after	Aomori, Japan	10, 21	x
Minjon	Wealthy?	1942	with	Excelsior, MN, USA	10, 22	x
Priam	Pri 14-126	1974	with	NJ, IN, IL, USA	4	x
Prinses Beatrix	Cox's Orange	1935?	after	Wageningen, Netherlands	10	
RedGranny Smith	Granny Smith	1961?	after	West Australia	10	
Rensselar	Ben Davis	1914	?	Geneva, NY, USA	20	
Secor	Salome	1922	after	Ames, IA, USA	22	x
Shinko	Ralls Janet	1948	just after	Aomori, Japan	10, 21	x
Sumukoni	Ralls Janet	?	after	Aomori, Japan	21	
Tamahime	Foster	1940	before	Ehime, Japan	21	
Wamdesa	Elk River	1938	?	Brookings, SD, USA	22	
Webster	(Ben Davis x Jon) x (Ben Davis x Jon)	1935	after	Geneva, NY, USA	20, 22	x
Wright	Ben Davis	1942	same	Mt. Grove, MO, USA	22	x

[z]Estimated harvest in relation to Jonathan season.
[y]North American and European fruit and tree nut hermplasm inventory. 1981, USDA Misc. Pub. 1406.
[x]Jonathan background suspected but not confirmed.
[w]It was not possible to find dates of introduction for all cultivars.

Table III. Cultivar originating as mutations of 'Jonathan.'

Cultivar Name	Year introduced[v]	Harvest season[z]	Place of origin	Literature source	Germplasm inventory listed[y]
Allred	1937	with	Allentown, PA, USA	14	
Anderson Jonathan	1927	with	Covert, MI, USA	14	x
Black Jon	1931	with	Wenatchee, W VA, USA	10, 14	x
Conkle Jonathan	1943	with	Chester, W VA, USA	10	x
Edwards Jonathan	1949	with	Quincy, IL, USA	22	
Erlison[x]	1968	ahead[z]	Green Forest, AR, USA	22	
Jon-a-red	1934	with	Peshastin, WA, USA	10, 14	x
Jonnee	1967	with	Cladwell, ID, USA	14, 22	x
Jonathan-Apex	1961	with	Kellowna, BC, Canada	10	
Kapai Red Jonathan	1931	with	Hawkes Bay, New Zealand	10	
KingJon (King Red Jonathan)	1933	with	Wenatchee, WA, USA	22	x
Nu-Jon[x]	1949	ahead	Entiat, WA, USA	22	
Nured	1965	with	Wenatchee, WN, USA	14, 22	x
Purdue Black-Jon	1940	?	Lafayette, IN, USA	22	
Red Jonathan	1951	with	New Zealand	10	
Valnur (KingJon)	1933	with	Wenatchee, WA, USA	14	
Watson Jonathan	1950	with	Vernon, BS, Canada	10, 22	x
Welday	?	?	Smith Field, Ohio, USA	22	x
Young Bearing Jonathan	1932	ahead	Vera, MO, USA	22	

[z]Estimated harvest in relation to Jonathan season.
[y]North American and European fruit and tree nut germplasm inventory. 1981, USDA Misc. Pub. 1406.
[x]Some question of a Jonathan mutation.
[w]It was not possible to find dates of introduction for all cultivars.

Literature Source for Cultivar Descriptions.

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Table IV. Cultivars containing 'Jonathan' in their genetic background.

Cultivar Name	Parentage	Year introduced[x]	Harvest season[z]	Place of origin	Literature source	Germplasm inventory listed[y]
Burgandy	(Jon x Rome) x (Macoun x Antonovka)	1974	ahead	Geneva, NY, USA	12	x
Generos	((Parmin D'ar x (M.Kaido x Jon) x (Jon x Belle de Boskop)	?	late	Romania	16,19	
Gloria	Jonathan x (Jonathan x Pasgood) x (Gustav Dudobil x Van Mors)	?	after	Romania	16	
Jonafree	(Jonathan x 14-6 44) x (Gallia Beauty x Redspy)	1979	with	NJ, IN, IL, USA	7	x
Macfree	McIntosh x PRI 48-177 PRI 48-177 has some Jonathan background	1974	ahead	Trenton, Ontario, Canada	5	x
Pionier	(Verzisoare x Jonathan) x Prima	?	just after	Romania	16, 19	
Spijon	Redspy x Seedling Jonathan	1968	after	Geneva, NY, USA	13	x
Voinea	(Verisoare x Joanthan) x Prima	?	?	Romania	16, 19	

[z]Estimated harvest in relation to Jonathan season.
[y]North American and European fruit and tree germplasm inventory. 1981, USDA Misc. Pub. 1406.
[x]It was not possible to find dates of introduction for all cultivars.

revered cultivar. This is confirmed by the fact that it has been so widely used in new apple cultivar development.

'Jonathan' synonyms: 'Djonathan,' 'Dzhonathan,' 'Dzonetr,' 'Esopus,' 'Spitzenberg (new),' 'King Philip,' 'King Phillip,' 'Philipp Rick,' 'Philip Rick,' 'Pomme Jonathan,' 'Ulster,' 'Ulster Seedling.'

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