

'Arandell'

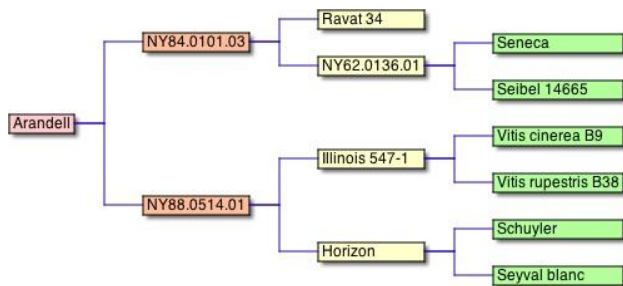
A disease-resistant red wine grape

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'Arandell' is a mid-season red wine grape characterized by a high degree of natural disease resistance and producing dark red wines with clean, berry aromas.

ORIGIN

'Arandell' was developed at Cornell University's New York State Agricultural Experiment Station in Geneva, N.Y. from a cross between two interspecific hybrid selections. The cross was made in 1995, and 23 disease-resistant seedlings were selected and planted in 1997. Only one, originally called NY95.0301.01, was selected for propagation and further testing in 2001.



DESCRIPTION

General growth and yield: Own-rooted vines grown in phylloxera (*Daktulosphaira vitifoliae*) infested soils have a pronounced upright growth habit and just medium vigor. Budbreak usually occurs before 'Tramintette' and after 'Concord'. Among vines grown at Geneva (9 x 8 ft spacing), without insect or disease control, pruning weights averaged 1.6 lbs/vine while fruit yield per vine averaged 8.5 lbs (ca. 2-3 tons/acre) between 2005 and 2011.

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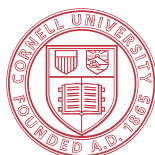


Photo: Jason Moore, CCTEC

In the absence of bird depredation and Japanese beetles, however, yields were 12 to 17 lbs/vine (ca. 3.5 to 5 tons/acre).

In an alternate Geneva location surrounded by disease-controlled vineyards, a trial examined the effects of grafting and training systems on 'Arandell'. Over a three year period (3rd through 5th leaf), average yields were 6 tons/acre for grafted vines and 4 tons/acre for own-rooted vines planted on 9 x 7 ft spacing, but yields as high as 8 tons/acre in grafted vines suggested that cluster thinning may be required in some years. Cluster weights ranged from about 0.15 to 0.27 lbs, with berry weights of approximately 1.1 gm/berry. Vines on high wire cordon (HWC) produced up to 3.3 lbs/vine more fruit than vines on low cordon with vertical shoot positioning (VSP). After a dry growing season, however, wood ripening on HWC was considerably poorer than with VSP, resulting in reduced yields the next year.

Winter hardiness: Vines of 'Arandell' are moderately winter hardy. Tests of mid-winter primary bud hardiness indicate that 50% bud kill will occur at approximately -13 F. Limited trunk damage has been noted after winter lows of -15 to -16 F, but without crown gall disease.



Disease resistance: The goal of the cross that produced 'Arandell' was to combine wine quality with disease resistance. During its development, all seedlings from this cross that were not disease resistant under no-spray conditions were discarded. The primary diseases observed were powdery mildew (*Erysiphe necator*), downy mildew (*Plasmopara viticola*), and Botrytis bunch rot (*Botrytis cinerea*). 'Arandell' is highly resistant to all three. Under heavy disease pressure, symptoms are rarely seen, though both mildews have been observed on foliage late in the season. In one season, limited defoliation due to downy mildew was seen. When grown adjacent to disease-controlled vineyards, even fewer symptoms are observed and their appearance delayed. Botrytis bunch rot has never exceeded 2% of fruit harvested. Black rot (*Guignardia bidwellii*) and Phomopsis (*Phomopsis viticola*) have been observed in some years, and vines of 'Arandell' would be classified as only moderately resistant.

Canopy management considerations: The upright growth of 'Arandell' makes it suitable for VSP, yet vines often produce more fruit on HWC. Vines should be grafted to increase fruit production, but cluster thinning may be needed.

Wine characteristics: Research wines produced from 'Arandell' are densely colored, have light to moderate tannins, and exhibit notes of dark berry fruit (blueberry, black cherry), tobacco and hints of black pepper or cedar on the finish. In cooler years, tasters note slight vegetal character, tending towards green pepper or currant leaf rather than hybrid-like.

Harvest chemistry is very workable, averaging 19.5°Brix, 3.3 pH and 10.5 g/L TA (Table 1). Yeast assimilable nitrogen (YAN) concentration averages 189 mg/L, but varies considerably by site and year, ranging from 112-269 mg/L (n=17). Malolactic fermentation is recommended for palate balance, but tends to push final wine pH above microbial safety levels, so back-addition of tartaric acid may be required for stabilization.

In a 2009 trial of 3, 7, and 10-day fermentation with skin contact, tasters showed slight preference for sensory characteristics of the 3-day, followed closely by the 10-day, though the latter was

described as greener with enhanced bitterness on the finish. Yeast trials using GRE, RC212, CSM, BM4X4, and BRL97 showed a slight preference for wines produced using GRE.

Preliminary trials suggest tannin additions, if desired, are most effective after pressing, but further research is underway. 'Arandell' can also be hot pressed to produce a soft, fruit-forward red.

Table 1: Average juice and wine chemistry for 'Arandell' research lots

	pH	TA (g/L TAE)	°Brix	% Ethanol
Juice	3.3 ¹	10.5 ¹	19.5 ¹	--
Wine (post MLF, cold stabilization)	3.9 ²	6.2 ²	--	10.8

¹n=35 juice lots, produced from 2005-2012 with fruit sourced from two sites in the Finger Lakes.

²n=29 wine lots, produced at Cornell's Vinification and Brewing lab from 2007-2011 using standard protocols.

OVERALL RECOMMENDATION

'Arandell' is recommended for wine production under either minimal spray or potentially with organic management systems.

AVAILABILITY

Vines of 'Arandell' may be purchased from licensed nurseries. For a list of licensees, or to become a licensee, contact:

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Enterprise and Commercialization (CCTEC)
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Virus-tested cuttings may be obtained from
Foundation Plant Services
University of California: <http://fps.ucdavis.edu>

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