

## COLD HARDY WINE GRAPES



# Frontenac

Frontenac is a classic bluish-black grape known for its rich, red wines and high vigor vines. The first of the Frontenac family introduced to the public, it was released in 1996. The introduction of Frontenac marked the start of a major movement in states like Iowa, Wisconsin, and Minnesota as the acreage of cold hardy grapes and public interest in cold hardy wines rapidly grew.

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## FRUIT CHARACTERISTICS

Frontenac has small to medium-sized berries and medium-sized clusters (0.3 lb/cluster). A high skin to pulp ratio results in intense dark red juice. Frontenac wines have a bold cherry flavor with hints of black currant and general red fruit. Rosé wines are characterized by a light Bing cherry note and an off-dry finish. Frontenac is also well-suited for ice wine and dessert wine, as the berries can “hang” late into the fall while maintaining high quality.

## HARDINESS

Frontenac is considered extremely hardy and has been proven to survive cold events down to -35 °F with little damage relative to most other varieties. Its extreme hardiness and wine making qualities make it one of the best red varieties to grow in USDA Zone 3.

## VIGOR

Frontenac has moderately high vigor, and is typically more vigorous than Marquette.

## BUD BREAK AND HARVEST TIMING

Frontenac has an early to midseason bud break, similar to Frontenac gris and Frontenac blanc. It is among the latest harvested varieties, harvested in October in Minnesota. While growers and winemakers may be tempted to harvest it earlier, patience is key to getting high quality fruit, as time is required to lower the acidity on this variety. Fruit can be harvested in the late fall or early winter for ice wine.

## HARVEST PARAMETERS

Frontenac should be harvested at 22-25 °Brix, or up to 30 for dessert wines. A desirable pH at harvest is between 3.0-3.3. Titratable acidity at harvest should be 10-15 g/L.

## TRAINING SYSTEMS

Frontenac is easiest to train on High Wire (HW) because of its semi-trailing growth habit and high vigor. It can also be grown on Geneva Double Curtain (GDC) on sites with fertile, high organic matter soil that increases vine vigor. While UMN does not encourage Vertical Shoot Positioning (VSP) for Frontenac, it can be grown on this system if extra time is taken to tuck shoots upward and hedge throughout the season. Consider the added labor cost of VSP before using VSP for Frontenac. A 2015 Wisconsin study found that Frontenac had a higher yield on HW, but only for one year of the study.

## BUDS AND CLUSTERS PER VINE

Frontenac produces about 3-5 buds per linear foot. The vines can support an average of 96 clusters per vine or 2-3 clusters per shoot. The typical yield per acre is 5-8 tons.

## PRUNING AND CANOPY MANAGEMENT

Frontenac vines have, on average, a spur every 2.5-3 inches of cordon length. When spur pruning, maintain 3-3.5 spurs per linear foot and shoot thin to 2 shoots per spur. Spur and cane pruning are both acceptable for Frontenac. Fruit zone leaf removal and shoot thinning can both be used to promote a balance between vegetative and reproductive growth, and expose fruit to sun to enhance ripening. Renew cordons and trunks as needed, if dieback or blind wood occurs.

## PEST SUSCEPTIBILITY

Frontenac is considered moderately susceptible to black rot, botrytis bunch rot, and powdery mildew. A fungicide program, especially around bloom, that addresses these pests will help ensure a healthy crop. It is not sensitive to applications of sulfur and copper, allowing these products to be used as organic fungicides. Its leaves are relatively tolerant of 2,4-D injury, but berries are still susceptible. Injuries from dicamba volatilization and drift from neighboring row crop fields are common. It is also susceptible to foliar phylloxera.

## FOR MORE INFORMATION:

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