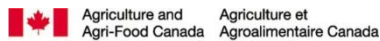




OPPORTUNITIES AND CHALLENGES FOR WINE GRAPE PRODUCTION IN NOVA SCOTIA

- **THE GRAPE INDUSTRY**
- **CLIMATE**
- **SOIL**
- **CULTIVARS**

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OPPORTUNITIES AND CHALLENGES FOR WINE GRAPE PRODUCTION IN NOVA SCOTIA

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THE GRAPE INDUSTRY

The commercial grape industry in Nova Scotia began in 1980. Today, Nova Scotia has eight estate farm wineries along with 30 growers managing approximately 400 acres of grapes in nine counties. The eight estate farm wineries are:

JOST VINEYARDS

48 Vintage Lane
Malagash,
Cumberland County, Nova Scotia
B0K 1E0
Established in 1984

Telephone: 902-257-2636
Web: www.jostwine.com
Email: info@jostwine.com

SAINTE-FAMILLE WINES

9 Dudley Park Lane
Falmouth,
Hants County, Nova Scotia
B0P 1L0
Established in 1990

Telephone: 902-798-8311
Web: www.st-famille.com
Email: scorkum@st-famille.com

DOMAINE DE GRAND PRÉ

11611 Highway 1
PO Box 105
Grand Pré,
Kings County, Nova Scotia
B0P 1M0
Established 1994

Telephone: 902-542-1753
Web: www.grandprewines.com
Email: mail@grandprewines.ns.ca

BLOMIDIN ESTATE WINERY

10313 Hwy 221,
Canning,
Kings County, Nova Scotia
B0P 1H0
Established in 1998

Telephone: 902-582-7565
Web: www.blomidonwine.com
Email: retail@blomidonwine.com

GASPEREAU VINEYARDS

2239 White Rock Road
Gaspereau,
Kings County, Nova Scotia
B4P 2R1
Established 2004

Telephone: 902-542-1455
Web: www.gaspereauwine.com
Email: info@gaspereauwine.com

PETITE RIVIERE VINEYARDS

1300 Italy Cross Rd.
Crousetown,
Lunenburg County, Nova Scotia
Established 2004

Telephone: 902-693-3033
Web: www.petiterivierewines.ca
Email: cslack@eastlink.ca

BEAR RIVER VINEYARDS

133 Chute Road
Bear River,
Annapolis County, Nova Scotia
Established 2006

Telephone: 902-467-4156
Web: www.wine.travel
Email: chris@wine.travel

L'ACADIE VINEYARDS

310 Slayter Road
Gaspereau,
Kings County, Nova Scotia
Established 2008

Telephone: 902-542-8463
Web: www.lacadievineyards.ca
Email: info@lacadievineyards.ca

The Grape Growers Association of Nova Scotia was founded in 1982. The President and Secretary/Treasurer for 2009 are:

President

James Warner
1972 Rosebank Ave
Halifax NS B3H 4C7
Phone: 902-425-5384
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jlwarner@martec.com

Secretary/Treasurer

Joanne Moran
P.O.Box 373
Aylesford, NS B0P 1C0
Phone: 902-847-0949
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ggans@ns.sympatico.ca

The Nova Scotia Farm Winery Policy was developed to encourage investment in the production of “wine” made from Nova Scotia grown grapes. The farm wineries must be located in Nova Scotia and ensure a minimum content of Nova Scotia grown grapes are used in making their wines. These wines may then be sold through farm winery retail stores and are subject to a revenue-sharing formula with the Nova Scotia Liquor Commission (NSLC). There are two classifications of farm wineries to which different grape content rules apply. First among these, the full “farm winery” must have entitlement to a minimum of 10 acres of certified vineyard located adjacent to the winery and are subject to a Nova Scotia grape content of 75% by 2006 for all wine to be sold through farm winery retail stores. The more recent “small farm winery” classification requires a minimum of two certified acres of vineyard adjacent to the winery and for each of these “on-site” acres may only purchase from an equivalent “off-site” acreage in Nova Scotia. Moreover, a 90% Nova Scotia content requirement applies to all sales made by the small farm winery through their on-site retail stores.

All farm wineries require certification of their “adjacent” acreage. A certification committee comprised of two members of the Grape Growers Association of Nova Scotia (GGANS), one member of AgraPoint, and one member of the Nova Scotia Department of Agriculture is tasked with ensuring this acreage meets basic vine density and management standards. Policy and additional information is available through the Chair of the Farm Winery Monitoring Committee or the NSLC.

CLIMATE

Nova Scotia is a province with a diverse climate that varies depending on latitude, prevailing winds, topography and proximity to water. While it is situated midway between the equator and the north pole, a position further south than the fine grape growing regions of Germany, Nova Scotia is nonetheless at the climatic limit for grape production. Therefore, careful planning and management decisions should be made based on long-term weather and local site suitability information before a location can be assumed suitable for grape production.

Temperature related parameters, such as length and intensity of the growing season and extreme winter minimum temperatures, are the main concerns for grape site selection in Nova Scotia. Additionally, the amount of rainfall and sunshine during the growing season will influence the success of a particular location.

The length of the growing season, defined as the period between the last spring frost and the first fall frost, is an important climatic parameter for selecting the quality of a site. This frost-free period must begin early enough so as to not damage the new, tender shoots and extend far enough into fall as to prevent injury to the fruit and the vines. In Nova Scotia, the frost-free period varies greatly from year to year and will be longest in coastal sites.

The intensity of the growing season is often measured by degree-day or heat unit accumulation which gives a good indication of the eventual maturity and quality of the fruit. Annual heat unit accumulation above 10°C is of interest for grape site selection because grape growth essentially begins at 10°C. The maximum average heat unit accumulation above 10°C in Nova Scotia is approximately 1000 in the better sites. Contrary to the frost-free period, degree-day accumulation will be reduced near the coast.

The magnitude, frequency and duration of winter minimum temperatures are an important consideration because of the risk of cold injury during the winter months. The risk of extreme minimum winter temperatures is reduced near bodies of water.

Microclimate differences may slightly alter the potential for success from one field to the next. Heat unit accumulation may be increased by establishing growth on south facing slopes compared to the cooler, low lying areas. Windbreaks may help to prevent strong winds from damaging the grape vines and berries as well as increase the heat unit accumulation. On the other hand, they reduce the natural air drainage and may decrease the length of the frost-free period. As a weather sensitive investment, grape production requires sound judgment before and after planting. Thus understanding the climatic limitation of a potential site is a necessity.

Considering the three principal climatic factors together as shown in the following table, the best sites in Nova Scotia would be rated Fair Suitability. This demonstrates the marginality of the region for grape production and the absolute requirement for a careful investigation of a site's climatic suitability for grape growing. One valuable aid in this research is the Applied Geomatics Research Group (AGRG) website (<http://agrgims.cogs.nsc.ca/website/AGRGweather/viewer.htm>) that maps the temperature variability in the Annapolis Valley (and several sites outside) from over 100 temperature logger stations.

Climatic Limitations to Grape Growing

Climate Rating	Degree-Days above 10 C	Frost-Free Period (Days)	Minimum temperatures (C)
Most suitable	> 1300	180	-21 3 times or less in 10 yrs. Minimum not lower than -23
Good suitability	1100 - 1300	165	-21 5 times or less in 10 yrs. Minimum not lower than -26
Fair suitability	900 - 1100	150	-21 almost every year. -26 or lower only once in 10 yrs.
Poor suitability	< 900	130	-23 5 times or more in 10 yrs. -26 3 times or more in 10 yrs.

SOIL

If the climatic conditions are suitable for growing grapes then the individual should next consider the soil. Grapes can survive and produce on a wide range of soils. It is to the advantage of the grower, however, to select a soil which has good internal drainage and a potential rooting depth of 80 cm or more. These characteristics can be recognized in the field by examining the soil to a depth of 1 m. Well drained soils have brightly colored horizons, while imperfect and poorly drained soils have mottling (spots of orange or red material) or dull coloration in the top 50 cm. Moderately well drained soils have mottling or dull

coloration between 50 and 100 cm. A restricting layer can be determined while exposing the site. As the degree of difficulty to excavate the site increases the chances of root penetration decreases.

An additional feature to look for is a uniform sandy loam to loam texture. If a restricting layer is absent in the top 80 cm, these textures usually have an adequate water holding capacity for periods of low rainfall. Further information on soils is available from soil maps and reports. These can be obtained for most parts of the province from Agriculture and Agri-Food Canada (<http://sis.agr.gc.ca/cansis/>) or the Geomatics Centre, Service Nova Scotia and Municipal Relations (<http://www.gov.ns.ca/snsmr/maps/>).

Since the above soil conditions are limited in distribution, the potential grower may have to settle for less than optimum soil conditions. In Nova Scotia, this usually means less than adequate internal drainage, a restricted rooting depth or a combination of both. Developing these soils will require the installation of tile drainage to improve internal drainage and possibly subsoiling to increase potential rooting depth. Both improvements will be required before planting. In addition, subsoiling may be required after establishing the vineyard. Consult with suitable drainage engineering expertise for detailed recommendations. Also, because tiling and to a lesser extent subsoiling are expensive, the potential grower should carefully evaluate the potential yields and returns before proceeding with planting.

CULTIVARS

Grape cultivars have been tested at the Kentville Research Station since 1913. More than 200 cultivars have been evaluated since that time. The first attempts at grape breeding were made in 1953 but the program was not continued because of the arrival of several promising French Hybrids. Grape breeding was resumed in 1983 to fill the perceived need for winter-hardy white wine cultivars.

Over the years various cultivars have been suggested for trial planting. Growers contemplating commercial production for wine should consider the following questions in relation to their vineyard site. **Is a particular cultivar winter hardy enough? Does it ripen early enough? Is it desired by the wineries?**

The most widely planted white wine grape is 'L'Acadie'. 'L'Acadie' is a Canadian hybrid bred at Vineland, Ontario and tested as V.53261. 'L'Acadie' is very disease resistant and easy to manage in the vineyard, although its yield potential is lower than 'Seyval'. Seyval produces excellent quality wine grapes but must be more carefully managed to prevent over-cropping which delays ripening. 'New York Muscat', a reddish-black grape which gives lightly colored, muscat flavoured juice, is also widely grown. Vidal is also grown and is the preferred variety for ice wine.

The predominant red wine cultivar grown in Nova Scotia is 'Maréchal Foch'. 'Foch' has proven to be winter-hardy and a reliable producer which adequately ripens in most years. For sites with cooler summers, the earlier ripening 'Lucy Kuhlman' is being grown. Acreage of 'Léon Millot', which generally has lower must acids than 'Foch', is increasing as is that of the popular Baco Noir.

There are approximately forty white wine selections from the AAFC breeding program at Kentville currently under evaluation by GGANS. Although it is too early to recommend any of these, it is expected that a few of them will eventually make a significant contribution to the industry.

The characteristics of currently grown cultivars are listed (alphabetically) in the table below and then briefly described.

Cultivar	Origin	Color	Season	Hardiness
Baco Noir	France	Black	early-midseason	fair
L'Acadie	Canada	Yellow-white	early-midseason	good
Léon Millot	France	Black	early-midseason	good
Lucy Kuhlman	France	Black	early	good - very good
Maréchal Foch	France	Black	early-midseason	very good
NY Muscat	USA	Reddish-black	midseason	good
Seyval	France	Yellow-white	midseason	fair
Vidal	France	Yellow-white	late	fair

Baco Noir (Baco 1) Folle Blanche x *V. riparia* crossed in 1902 by Francois Baco. Vines are extremely vigorous and can be difficult to manage after an injurious winter. Baco Noir should be grown on heavy, poorly drained soils to reduce vine vigor and encourage properly balanced fruit quality. Wine tends to be deeply colored, fruity and herbaceous, and can be excellent.

L'Acadie (V. 53261) Seibel 13053 x Seyve-Villard 14-287 crossed in 1953 by O.A. Bradt of the Horticultural Research Institute of Ontario, Vineland Station. L'Acadie is a sister seedling to Veeblanc. Canes of L'Acadie are reddish in color and very upright in growth habit. Plants are quite resistant to downy mildew and powdery mildew and clusters are loose and thereby avoid bunch rot. It is difficult to over-crop this variety. Wine quality has been described as slightly spicy with a flowery aroma.

Léon Millot (Kuhlmann194.2) *V. riparia-rupestris* x Goldriesling crossed by Eugene Kuhlmann. Léon Millot is a sister seedling to Maréchal Foch. Compared to Foch, vines have more vigor, producing smaller berries and clusters ripening a few days earlier with lower acid levels. It is resistant to downy mildew but susceptible to powdery mildew. Wine is similar to Foch.

Lucy Kuhlmann (Kuhlmann 149-1) *V. riparia-rupestris* x Goldriesling crossed by Eugene Kuhlmann. Lucy Kuhlmann is a sister seedling to Maréchal Foch. It ripens earlier than Foch and is suggested for cooler sites.

Maréchal Foch (Kuhlmann188.2) *V. riparia-rupestris* x Goldriesling crossed by Eugene Kuhlmann. Foch is the most common red wine variety in Nova Scotia and it is reliable and productive. It is resistant to downy mildew but moderately susceptible to powdery mildew. Intense, dark red-violet wines with a distinct complex quality can be produced in cool climates.

New York Muscat Muscat Hamburg x Ontario crossed by Richard Wellington in 1926 at the New York State Agricultural Experiment Station. Named and introduced in 1961. Vines have low to medium vigor and can be affected by powdery mildew but not downy mildew. Productivity is low to medium. This variety has a distinct and desirable muscat flavor and is used to make sweet muscat-flavored wines or used to blend with white wines to enhance the bouquet.

Seyval (SV 5276) Seibel 5656 x Seibel 4986 cross made by Seyve-Villard in France. Vines are

moderately vigorous and produce large bunches. It is prone to over-cropping and subsequent winter injury. Careful control of crop size must be exercised to ensure maturity in Nova Scotia. Seyval is slightly susceptible to downy mildew but susceptible to powdery mildew. It is also prone to bunch rot. Seyval can produce a white wine of high quality.

Vidal Blanc (Vidal 256) Ugni Blanc x Seibel 4986 cross made by J.L. Vidal in France. Vines are vigorous and productive and moderately susceptible to powdery mildew. Vines will suffer winter injury if allowed to become too vigorous on coarse textured soils. Vidal Blanc is quite late in ripening and can be left to hang in anticipation of ice wine. Wine quality is very good but it is a challenge to grow successfully in Nova Scotia.