Perennia

FACT SHEET

NEW VINEYARD ESTABLISHMENT IN EASTERN CANADA: A CONCISE PLANNING GUIDE FOR GROWERS

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TIMELINE AT A GLANCE

Seasonal timing adapted from *Wine Grape Production Guide for Eastern North America*.

- **Two Years Pre Plant** – Business planning, site and soil evaluation, variety decisions
- **One Year Pre Plant** – Site preparation, drainage/irrigation, trellis and vine orders
- **Year of Planting** – Pest scouting, early vine care

TWO YEARS PRE PLANT

BUSINESS PLANNING AND EQUIPMENT

Vineyards are capital-intensive, long-term investments. A comprehensive business plan should be developed at least two years prior to planting to clearly define target volumes and buyers, establishment and operating costs, labour requirements, cash flow and financing.

NOTE: Avoid planting on speculation. Grow what the market demands and do not assume that all tasks can be managed independently.

Managing equipment costs

- **Equipment strategy:** Decide whether to own, rent equipment, or hire custom services (e.g., laser planting, harvesting etc.).
  - » Assess existing equipment: will it physically fit the site and row spacing (the "tractor factor")?
  - » Consider contingencies: if your tractor breaks down, can you borrow a replacement? Will it fit your vineyard layout?
- **Shared purchasing:** Explore shared ownership or cooperative purchasing arrangements with nearby growers to reduce capital costs.
- **Leasing options:** Consider leasing equipment from neighbours or wineries, while ensuring availability aligns with your critical timing needs.

Essential records

- Soil and petiole test results, including all nutrient applications.
- Weather and climate data.
- Pest scouting observations (insects, weeds, diseases, mites).
- Spray and pest management records, including program approach (organic, biodynamic, conventional). For organic/biodynamic systems, ensure certification requirements and regulations are clearly understood. Document application dates, products used and rates, as these dictate future management options.
- Yield data and vine health assessments, including identification of weak or problem areas.
- Annual operating costs and records of cultural practices (e.g., mowing, disking, pest control, nutrient applications).
- Labour records, including owner and hired labour.
- Realistic assessment of labour capacity. Can all tasks be completed within the time available? Evenings, weekends and informal help from friends or family should not be relied upon.

Order vines early—begin planning and placing orders by year two

Management and cost of production decisions: Accurately track the time required for all activities, including management. Understanding how many hours you contribute ensures that, if you need to be replaced for any reason, the time and cost of that replacement can be realistically assessed.

SITE SELECTION AND SOIL EVALUATION

Site choice largely determines long term vineyard success and is your most critical decision.

Key factors when selecting your site:

- Elevation and relative elevation – affect frost risk and air drainage.
- Slope and air drainage – cold air flows downhill; mid slope sites often perform best.
- Aspect – influences heat accumulation and ripening.

Wildlife and risk management – assess deer and other animal pressure (talk to your neighbours).

Figure 1. Examples of soil drainage problems.

1. Soil evaluation

Grapevines can grow in a wide range of soils, however, soil limitations can significantly influence vine health and productivity.

From March to May, collect soil samples from the top 30 centimeters to assess soil pH. Submit samples to AAFC through the Nova Scotia Soil Testing Laboratory in Truro or the drop-off desk at the Kentville Research Centre.

- **How to take an accurate soil sample Factsheet**
- **How to take an accurate soil sample Video**
- **Where to drop off your soil sample**

2. Review soil maps and surveys

- **Poor drainage:** reduced growth, winter injury risk.
- **Low pH:** nutrient deficiencies, aluminum toxicity.
- **Low water holding capacity:** drought stress.
- **Shallow or root restricting layers/ compaction:** limited root growth.
- **Texture:** determines when you can work the soil.
- **Soil depth:** water holding capacity.

3. Pre plant improvements

Identify any rectify drainage issues two years prior to planting.

- Install drainage tile. This is an important step for Nova Scotia soil.
  - » See Perennia's Farm Data Tools platform for soil survey data compiled by the CanSIS database.
- Based on Soil test reports- correct soil pH and nutrients with pre plant amendments
- Deep plowing/ripping to break restrictive (hardpans) layers

VARIETY AND PLANT MATERIAL SELECTION

- **Align vine selection with winery priorities:** Ensure vine purchases reflect winery requirements and that grower contracts are negotiated in advance. Plant only the varieties specified by your buyer or contracting winery.
- **Rootstock and cultivar availability:** Specialty or less common material often requires extended lead times. Order vines at least two years in advance to secure the exact material you need rather than accepting substitutions. This is a 25-year investment; be clear, specific and firm in terms of your requirements.
- **Vine-type considerations:** Evaluate choices such as own-rooted versus grafted vines and hybrids versus Vitis vinifera, based on site conditions and production goals.
- **Nursery selection:** Source vines from reputable nurseries that provide certified, virus-tested planting material. Contact the Canadian Grapevine Certification Network (CGCN) for a list of nurseries near you.
- Select an appropriate training system for each variety, ensuring all required materials are available before work begins. Installation schedules can be difficult to change, making timing critical.

- Determine trellis design and order materials in advance (e.g., wood or metal posts, posts with clips, wire types).
- Confirm row orientation, vine and row spacing and headland dimensions to accommodate planned equipment, whether owned, rented or leased.
- Decide how you want to plant (laser planting, auger or hand planting). Planting dates may move due to unforeseen circumstance, so **schedule your planting date as well in advance as possible**. Have your site soil prepared for planting whenever the planter arrives.
- Contact planting contractors early.

# of Feet Between Rows	# of Feet Between Vines						
	3	4	5	6	7	8	9
3	4,840	3,630	2,904	2,420	2,074	1,818	1,613
4	3,630	2,723	2,178	1,815	1,556	1,361	1,210
5	2,904	2,178	1,742	1,452	1,245	1,089	968
6	2,420	1,815	1,452	1,010	1,037	908	807
7	2,074	1,556	1,245	1,037	889	778	691
8	1,815	1,361	1,089	908	778	681	605
9	1,613	1,210	968	807	691	605	538
10	1,452	1,089	871	726	622	545	484
11	1,320	990	792	660	566	495	440
12	1,210	908	726	605	519	454	403

Figure 2. Vine Spacing Chart. Northeastern Vine Supply.

ONE YEAR PRE PLANT

SITE PREPARATION

Mid-April to Early Season:

- Complete perennial weed control well in advance, ideally beginning two years prior to planting, and maintain control through the pre-plant period.
- Remove trees, shrubs, rocks and any remaining perennial weeds from the site.
- Finalize and install drainage systems as required.
  - » Drainage is far easier to install before vines and trellis are in place.
- Complete detailed vineyard planning and layout at this stage, including block design, perimeter boundaries, access roads and infrastructure, as these decisions are critical and difficult to change later.

Row orientation: North to south rows generally provide more even light distribution in cool climates but site constraints may dictate layout to local topography and capacity to operate equipment. If site constraints exist, look at rows to be wider rather than narrow.

Record Keeping System: Establish a block by block record keeping system before vines go into the ground. Develop accurate sets of maps for cultivars, rows, spacing by block. Accurate records support better management.

YEAR OF PLANTING

VINEYARD LAYOUT

- **Row spacing:** Must accommodate equipment width and reflect site vigor.
- **Vine spacing:** Selected to balance canopy development, vine vigor and labour efficiency.
- **Row height:** Influences light interception and shading within the canopy.
- **Field realities:** Rows are not always straight or level. Allow adequate clearance for equipment (30 to 50 centimetres on each side).

Site capacity ultimately determines yield, not tighter spacing. Excessively narrow rows can increase pest pressure, limit spray coverage and restrict product options.

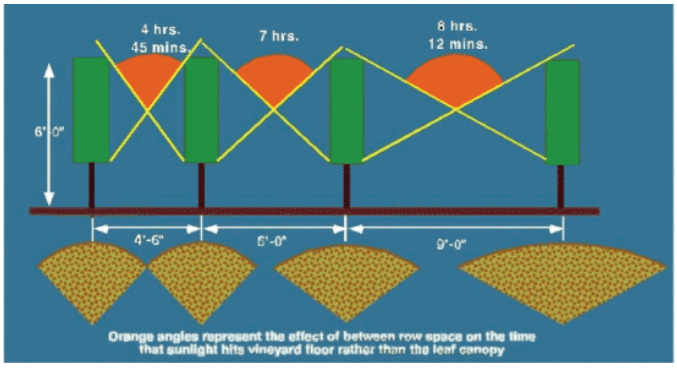

Figure 3. Row width and height will affect sunlight interception by the canopy during various periods of the day. Finger Lakes Vineyard Notes. June 8, 2000.

PLANTING

- **Vine handling:** Handle vines carefully to prevent root desiccation. Consult the nursery for best handling practices once vines are received.
- **Site readiness:** Ensure the site is fully prepared for correct planting depth and spacing. Develop a realistic estimate of planting time.
- **Planting capacity:** Understand and plan around the number of vines that can be hand-planted per hour and per day.
- **Water access:** Ensure immediate access to water following planting, if required.
- **Weed control:** Establish an effective weed management plan. Maintain excellent weed control for the first 10 weeks after planting to support strong vine establishment.

EARLY VINEYARD MANAGEMENT

Nutrient Management

- Maintain a complete set of soil test reports for all blocks, updating in Years two and one pre-plant.
- Conduct follow-up soil tests the year after planting, sampling from the vine root zone rather than the middle of the row.
- Schedule routine soil testing at least every three years and petiole testing every two years.
- Perform immediate petiole sampling on any vine showing growth issues.
- Use petiole testing from Year two onward to monitor and confirm nutrient uptake.

Weed Management

Two years prior to planting is always the best time to begin weed management. Weeds will compete with new vine plantings for nutrients and water.

- If using chemical weed control, check the labels. Some products have restrictions of three years after planting. Some products may damage new vines because of the residual mode of action they have.
- Minimize weed competition during planting year and further establishment years.
  - » See Perennia's Wine Grape Weed Management Guide for more information.

Figure 4. Weeds out of control in a vineyard. Michigan State University.

Pest and Disease Management

- Begin with regular scouting
- Follow IPM principles and threshold based decisions.
  - » See Perennia's Grape Pest Scouting Basics for more information.

Young Vine Training and Pruning

- Focus on trunk establishment and vine balance for the first two years.
  - » See Perennia's Vine Pruning factsheet for more information.

KEY TAKE HOME MESSAGE

Successful grape growing requires careful forward planning. The intended market for your crop is just as important as the varieties you select to plant. Establishing a vineyard depends on selecting the right site, addressing potential limitations in advance, and making informed decisions before planting. Time and effort invested during the pre-plant phase yield long-term benefits in both vineyard performance and profitability.