



Triggs Premium Vinifera Speaker Series Site Visit Notes – Fritz Westover – 2026

Site 1 - Glen Lake Vineyards Vineyard Establishment and 1st Year Vine Management

1. Pre-Plant Soil Preparation

- Soil pH is the first priority: target 6–6.5 for optimal nutrient availability
 - Aiden's site: pH already ~6.5, in good shape
- Lime, phosphorus, calcium, and potassium must be tilled into the root zone before planting
 - Surface applications of these nutrients take years to reach root depth
 - Root zone depth: ~15 inches; this is the window to amend deeply
- Aiden's pre-plant amendments: ~30 tons/acre manure, ripped in
- Fallow year not required, but soil must be properly treated before replanting

2. Nutrient Mobility and Fertilization Strategy

- High-mobility nutrients (move with rain/mass flow): nitrogen, boron
 - Can be applied to surface and will reach roots after rain
 - Boron: uncharged, mixes with herbicide; but avoid over-application (leaf margin burn)
- Low-mobility nutrients (root must find them): phosphorus, potassium, calcium
 - Must be incorporated pre-plant; no surface application shortcut
 - Mycorrhizal fungi help vines access phosphorus even when soil levels appear low
- Post-planting: Aiden applied 50–75 lbs/acre MAP (11% N) as top-dress band, 4–5 days after planting
 - ~100 lbs/acre MAP ≈ 11 lbs nitrogen: a solid benchmark for year-one banding
 - Banding vs. broadcasting: banded rate can be cut roughly in half for equivalent effect
 - Max efficient nitrogen rate: ~20 lbs/acre; above that, leaching losses increase sharply
- Fertilization cutoff: no later than July to allow dormancy and winter hardening
- Foliar nutrition on young vines: use half-rate (e.g., 32 oz vs. 64 oz per 50 gal)
 - Useful after heavy rain events that temporarily tie up soil nutrients

3. Nutrient Deficiency Identification

- Pale green leaves: nitrogen deficiency
- Marginal leaf necrosis (older leaves): potassium deficiency
- Intervenial chlorosis/necrosis: magnesium deficiency



- Tissue sampling not recommended for year-one vines
 - Root system too undeveloped to give accurate soil representation
 - Exception: suspected K deficiency where K vs. Mg must be confirmed before fertilizing
 - Adding K when deficiency is actually Mg will worsen Mg deficiency through competition

4. Vine Training: Year One

- First 4–5 leaves powered by stored carbohydrates in roots and small wood
 - Transpiration begins at ~5 leaves, triggering active nutrient uptake
- Shoot thinning: thin to 1–2 shoots as early as possible (when shoots are small and actively growing)
 - Upright growth suppresses lateral push; lateral growth = more sinks, less trunk development
 - Thinning early reduces dormant pruning cuts and limits trunk disease entry points
 - Late-season thinning (as in Aiden's current vineyard) yields little benefit: shoot tips no longer actively growing
- Aiden's year-one study: thinned to 2 shoots, tied upright, used MAP
 - Most vines hardened off to ~100 cm; achieved straight trunk without layover
- Training stake preference: metal rebar or pencil rod (8–10 mm diameter)
 - Trunk should match stake diameter before being retained; undersized wood cut back to 2 buds
- Grow tubes: paper for large vineyards (cheaper), plastic for small (reusable)
 - Prefer wider tubes for airflow; do not remove leaves on trunks

5. Trunk Disease and Pruning Wounds

- Trunk diseases enter through pruning wounds; spores are rain-splashed from older wood or blow in from nearby wooded areas
- Fewer shoots = fewer pruning wounds = lower infection risk
 - 4 shoots bushed = 4 wounds; thinned to 2 shoots = 2 pruning wounds
- Shoot-thinning wounds heal within 1–2 days; dormant pruning wounds can stay open for weeks
- Research baseline: without prevention, trunk disease symptoms appear around year 13
- Young vines are lower risk, but establishing good habits early is worthwhile

6. Year-One Spray Program for Young Vines

- Go cheap: sulfur, generic FRAC group 3 or 11 for powdery mildew
- Downy mildew is the bigger threat for defoliation on young vines
 - Phosphonate (phosphite) products offer some downy suppression
 - Copper is an option; mancozeb limited to one annual application here
- Foliar feeds can be tank-mixed at half-rate into spray program
- Avoid high rates of methylated seed oils and aggressive adjuvants on young vines
- Cover crop recommendation: establish living roots in row middles as soon as possible
 - Aiden's planned mix: 70% fescue, 20% clover, 10% oilseed radish



Site 2 - Triggs – Jackson Estate Vineyards **Vine Age Target of 2nd Through 5th Leaf**

1. Year 2 to 3 Vine Training Fundamentals

- Goal: establish trunk and spur renewal zone for cane pruning before focusing on fruit production
- Year 1: thin to one or two shoots, add grow tubes
 - Once tubes are on, shoot thinning is no longer practical
 - Replants are harder to manage; leave two buds and tube, deal with after
- Two trunks of different age wood may improve chances of winter hardiness
 - Some growers intentionally train renewal or second trunks in different years

2. The Layover Technique

- Laying a cane down in Year 3 to produce first crop
 - Year 1: two buds; Year 2: cane production; Year 3: lay cane, produce fruit
- Risk: apical dominance can push growth to cane ends, starving the head region
 - Tip provided: bend cane at a tight, almost 90-degree angle at the top
 - Restricts flow slightly, encourages shoots to push below the fruiting wire
- No wimpy wood rule: nothing under 3/8 inch (8 to 10 mm) diameter on trunk or a fruiting wire
 - Undersized canes produce weak shoots, small clusters, and drain carbohydrate reserves
 - Workers must be trained not to fill the wire with wimpy canes regardless

3. Trunking as an Alternative to Layover

- If vine is not strong enough for layover, trunk it at the fruiting wire instead
 - Apical dominance shifts to trunk top, pushing 4 to 6 shoots in the zone of interest for renewal spur development
 - Four shoots can yield up to 8 clusters, roughly two-thirds of a layover crop
- Principle: health of the vine comes before crop
- Trunking guarantees future spur positions in the zone of interest
 - Layover risks having fewer or no renewal positions below the head

4. Renewal Spur Positioning

- Ideal zone: a fist to a pruning-shear width below the fruiting wire
- SAP flow pruning model: no cuts on the trunk, flow goes directly into the spur position
- Spur setup: one bud facing down (future renewal), one bud up (fruiting cane)
 - Renew from this spur position every year if possible and avoid hard trunk cuts
- Supervision is critical: train crew to assess the zone of interest, not strip all trunk growth
- May take up to 5 years to achieve uniform spur positions across the vineyard
- Ask Fritz about his 16-hour pruning emersion course with Virtual Viticulture Academy.
Contact via email: support@virtualviticultureacademy.com



5. Tissue Sampling: Petiole vs. Leaf Blade

- Historical standard in Ontario and eastern North America: petioles at bloom or veraison
- HighRes Vineyard Nutrition Project (CA, WA, OR, VA, NY): leaf blade more reliable for most nutrients
 - Exception: boron accumulates at leaf margins, giving false highs; use petiole for boron
- Nitrogen benchmarks differ: petiole 0.75 to 1.5%, leaf blade 2 to 3%
- Leaf blade contamination risk: copper and manganese (from Mancozeb sprays) do not wash off
 - If Mancozeb is used and zinc/manganese deficiency is suspected, send both blade and petiole
- Fritz's current approach: starting new growers on leaf blade; keeping petiole for boron and long-term continuity
- Sampling position is the same for both: 6 to 7 leaves from the first fully unfolded leaf at shoot tip
 - At bloom: leaf opposite the lowest cluster; at veraison: recently matured leaf near canopy top
 - Collect 50 to 75 samples (up to 150 for small petioles)
- Comparative (diagnostic) sampling: send symptomatic vs. healthy leaves from same variety any time of year

6. Nutrient Corrections and SAP Analysis

- Common deficiencies in Ontario: magnesium, potassium, manganese, boron, zinc, nitrogen
- In-season nitrogen correction: foliar application preferred from bunch closure through veraison
 - Use low-biuret slow-release nitrogen (see label)
 - Proven to increase yeast assimilable nitrogen (YAN) without stimulating lateral growth
 - Fall foliar nitrogen carries over, possible contributing to size and vigor the following season
 - Caveat: avoid late season foliar N if Botrytis is a chronic issue in the block; wait until spring instead
- SAP analysis: Fritz's current view is the industry lacks enough consistent, actionable data
 - Requires overnight shipping, more frequent sampling, and expert interpretation
 - Useful potential if it can diagnose specific problems petioles/blades cannot, but not there yet

7. Next Steps

- **Access Fritz's resource landing page via QR code or typed URL**
 - <https://virtualviticultureacademy.com/triggs>
 - Includes leaf blade, petiole, and soil standards; session notes also posted there.



Site 3 - Andrew Peller Limited

Vine Age Target of 10th Leaf or Older

1. Nutrient Strategy for Mature Vines

- Low nitrogen input on vigorous, mature sites
- Estimated 7–8 lbs active nitrogen per acre applied annually with organic amendments
- Current program (4–5 years running):
 - Liquid manure activator (Farm for Profit) in spring or fall
 - Duck manure compost at ~1.4 tons/acre broadcast
 - 3x foliar sprays of 18-18-18 through the growing season
- Key principle: low fertilizer rates for maintenance and slow release of nutrients

2. Nutrient Budgeting Framework

- Fruit removal exports nutrients: ~4 lbs N, 5.5 lbs K, 0.6 lbs P, 0.3 lbs Mg per ton per acre
- At 4 tons/acre: ~16 lbs N removed per acre
- Oversimplified budget: replace what is exported, then adjust based on tissue data
- Soil organic matter offsets inputs: each 1% OM releases ~20–30 lbs N/acre under good conditions
 - Wade's OM rose from ~2.5–2.9% to 3.5% with manure additions
- Phosphorus accumulation risk: triple-13 applied repeatedly can build excess P, suppressing zinc uptake
- Zinc declining in plant tissue despite elevated soil levels: check phosphorus competition

3. Plant Tissue Sampling Protocol

- Bloom sample = progress report: identifies deficiencies before they become problems
- Veraison sample = report card: 6th–7th leaf petiole or blade from an unhedged shoot
- Recommended: at least twice per season in a sentinel block, plus comprehensive sampling at Veraison
- Soil data tracks long-term changes (pH, OM, amendments); plant data drives in-season response

4. Nitrogen Deficiency: Field Diagnosis

- Five classic symptoms visible on the interplant vines:
 1. Uniform pale green/light canopy color
 2. Bright neon-red petioles (anthocyanin from nitrogen stress)
 3. Red rachis on nearly every cluster
 4. Poor fruit set (stress present since bloom)
 5. Shoot tips slowing or stopped; no lateral growth
- Cause uncertain: likely combination of heavy cropping, potted vine root system, and management parity with mature vines



5. Canopy and Crop Load Management

- Goal: bottom two-thirds of canopy stays green, healthy, and disease-resistant through ripening
- Leaf removal strategy varies by disease pressure and grower goals; enough canopy must remain to ripen fruit
- Mechanical leafer issues:
 - Double/stacked canes leafed unevenly; one layer over-leafed, one under-leafed
 - Pendelbogen arched canes hit harder at the base
 - Operators may run leafer through young and mature vines and over-strip young vines
- 2-1-0 fruit drop rule (Wade's approach):
 - Strong shoot past top wire: 2 clusters
 - Mid-length shoot: 1 cluster
 - Short shoot (below first catch wire): 0 clusters
- Rehab plan for stressed interplants:
 - Remove small wood; spur prune to 2 to 4 spurs until a viable cane develops
 - Widen herbicide strip to reduce cover crop competition
 - Consider targeted nitrogen application

6. Soil Health and Biological Amendments

- Cover crops add root biomass that feeds microbial populations even after termination
- Year-round mowed cover crop works if vines can handle competition; cultivate in drought years
- Sheep grazing for leaf removal: proven effective (Desert Willow example, 180 ewes)
 - Side netting used to control grazing height
- Biological spray products: Katie Gold (Cornell) showing alternating bio/synthetic sprays through bloom to 6 weeks post-bloom can maintain efficacy
 - Cost not lower: biologicals are expensive, but synthetic spray count is reduced
 - Recommendation: trial one product in one small block before scaling
- Future direction: disease-resistant hybrids (e.g., PiWi varieties) combined with biologicals to reduce synthetic inputs

7. Next Steps and Resources

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