FULL ASSESSMENT

Sample Report

Mount Airy, Maryland · Linganore AVA

CROP CLASS	Vineyard
PARCEL AREA	25.96 acres
COORDINATES	39.40° N · 77.20° W
USDA HARDINESS	Zone 7a
PREPARED	July 23, 2026

This report synthesizes public geospatial records and modeled climate surfaces for the property identified above. It presents evidence and interpretation; it does not prescribe actions. The confidence notation used throughout is explained on the following page.

Every value in this report is computed and traceable: each derives from a named public dataset or a published method and carries its confidence grade, with no language model in the loop. The prose that explains those values is templated from them, not composed by a model. Run against the same inputs and data versions, the report reproduces exactly.

Contents

Executive Summary

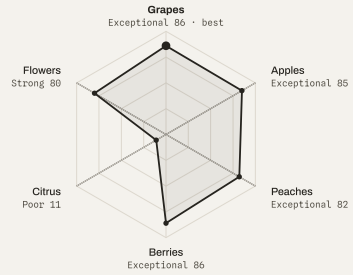
Sample Report is strongly favorable ground for grapes, berries, apples, and peaches. Capable land with one weak spot to plan around: disease pressure. On ground like this, where you place each planting matters as much as which crop or variety you pick.

For grapes, berries, apples, and peaches the land reads exceptional. Its strengths are broad: soil is its strongest attribute, and slope, aspect, and hydrology hold up. Its most challenging attribute is disease pressure (43), a direct consequence of the humid climate, and it is the thread through everything that follows: it makes canopy airflow and a spray program first-order design choices rather than afterthoughts, and it favors the disease-tolerant selections over the more susceptible ones.

Every one of the 6 selected varieties clears the hard blockers that apply to it; none is ruled out on this land. The report ranks them by how cleanly the ground meets each one's needs and takes each in turn. The economics describe a decade-scale commitment whose return turns more on sales channel than on any site factor this report can measure. The land sets how well each crop can be grown here, shown per crop above; the plan and the market determine whether it pays.

WHERE TO SPEND ATTENTION FIRST: HUMID-CLIMATE DISEASE PRESSURE.

LAND SUITABILITY BY PERENNIAL CROP



Best to worst: **Exceptional**, **Strong**, **Moderate**, **Marginal**, **Poor**. Exceptional and Strong plant with confidence; Marginal and Poor carry real limits for that crop.

BEST-FIT CROP
Grapes · Exceptional (86) ▨

STRONGEST ATTRIBUTE
Soil (99) ■

MOST CHALLENGING ATTRIBUTE
Disease (43) ▨

HARDINESS
Zone 7a ▨

PLANTINGS
6 varieties · 1 class

BOTTOM LINE

What to confirm before you commit: a lab soil test on each block, a professional wetland delineation, and one season of on-site temperature. The closing checklist sets out the full sequence.

How to Use This Report

THE POSTURE

This report derisks decisions. It does not make them. It reads the ground from the best public and remote data available, ranks what will matter most to your plantings, marks what is still uncertain, and tells you what to confirm on site before you commit money. It does not tell you what to plant. That choice is yours, and it depends on your market, your capital, and your appetite for management that no dataset can see.

So read it for priorities, not just facts. The land speaks first, in Sections 2 through 6, once and crop-neutrally, and the Findings page ranks those facts by how much they should shape your plan. Where this tier assesses specific varieties, it ranks them by how cleanly the land fits each, then takes each in turn against the same ground.

This is the modeled report: every value is graded for confidence, and the sections that lean on remote surfaces (climate, hardiness, the cold-air read) say so plainly. The Findings page ends with a short field-validation ledger: the handful of on-site measurements that convert this modeled assessment into a validated one before block layout.

WHAT MATTERS MOST

The Findings page ranks every factor into primary, secondary, and low-impact, so you know where to spend attention and budget.

WHERE THE PLANTINGS STAND

When varieties are assessed, they are grouped into priority tiers by how cleanly the land meets each one's needs, strongest fit first.

WHAT TO VERIFY NEXT

The field-validation ledger lists the measurements to take on site, with a column to record your own readings against ours.

How to Read This Report

Every value in this report carries its confidence visibly. Folia never presents an estimate as a measurement, and treats an unknown as a real answer rather than a blank. The five grades below appear beside values in tables, figures, and summaries throughout the document. They are worth thirty seconds now; every subsequent page relies on them. On the consideration pages a second, higher-level reading appears: an Assessment Confidence of High, Moderate, or Low. That grades the interpretation, how strongly Folia stands behind the claim, rather than the data source beneath it, so a well-established synthesis on a modeled input can read High while a firm measurement projected to a single block reads Moderate. The evidence grade is still shown beneath each. Neither is a recommendation: the interpretation is Folia's; the decision stays yours.

MARK	GRADE	MEANING	TYPICAL LAYERS
■	**Sourced · Measured**	Returned directly by an authoritative public dataset. Reads as firm.	Soil, flood, wetland, wildfire
◪	**Derived**	Computed arithmetically from measured data; carries the precision of its source grid.	Slope, aspect, relief
▨	**Modeled**	Produced by a statistical surface or interpolation. Correct at its cell scale; approximate at property scale.	Climate normals, hardiness zone
◧	**Estimate**	A range judged from regional reference data. Always presented as a band, never a point.	Economics, vigor response
□	**Unknown**	The underlying source could not answer. The gap is stated, never filled.	Any layer, when its source is down

THE SAME LANGUAGE IN CHARTS

Solid fill, solid line: sourced and derived.

Pattern fill, dashed line: modeled.

Open fill, range: estimate.

A composite finding is only as firm as its least-firm input, and carries that input's grade.

"None mapped" and "not determined" are different statements. The first is an answer; the second is a gap, graded □.

Values served from a cached read carry their capture date.

01 Property at a Glance

ALL LAYERS RESOLVED · NO SOURCE UNAVAILABLE THIS RUN

The headline facts of the property and the plantings assessed against it. The land is characterized once, in the sections that follow; each selected variety is then taken in turn, tested against the same ground.

PROPERTY AREA	ELEVATION ◪	MEAN SLOPE ◪	SOIL ■	GROWING DEGREE DAYS ▨	HARDINESS ▨	DISEASE PRESSURE ▨	FLOOD ■
25.96 acres	625 ft	12.4%	Channery loam	3,372	Zone 7a	High	Zone X, minimal

IDENTITY

Location	Mount Airy, Maryland · Linganore AVA
Growing region	Linganore AVA
Macro-region	Mid-Atlantic
Coordinates	39.40° N · 77.20° W
Farmland class	Farmland of statewide importance ■
Frost-free season	174 days ▨

86 / 100 · land suitability composite for perennial crops, weighted mean of seven attributes

SELECTED PLANTINGS

CLASS	VARIETIES	READ
Vineyard	Chambourcin, Norton, Cabernet Franc, Albariño, Vidal Blanc, Chardonnay	Mixed, see analysis

Each variety is examined in full in its own crop-class section, tested against the land characterized in Sections 2 through 6.

TOP-LINE READ

The property presents strongly favorable ground for perennial crops, with a land suitability composite of 86 of 100 (Exceptional band). All 6 selected varieties across the 1 crop class clear every hard blocker that applies to them; none is ruled out on this land.

The land's strengths are broad: soil is its strongest attribute, and slope, aspect, and hydrology read well. Its most challenging attribute is disease (43), a direct consequence of the humid climate.

The land is assessed once in Sections 2 through 6, crop-neutrally, because slope, soil, cold, heat, and water are properties of the ground rather than the planting. Each selected variety is then examined in full: how its needs meet this specific land, which blockers it clears, what it will ask of the grower, and what it is likely to cost.

Findings

No site-level blocker precludes planting here; the question is what should carry the most weight in the plan. This page ranks exactly that, primary through low-impact, and lists what to confirm on site, ahead of the variety ranking in Section 7. It derisks the decision; what to plant remains yours.

The property is strongly favorable ground for perennial crops, and one attribute explains most of what follows. Disease pressure is the single soft reading (43) against a field otherwise in the high 80s and 90s, and it is the reason disease-tolerant material sits ahead of the more susceptible cultivars here, the reason canopy and spray planning carry real weight, and the thread that runs through every variety's considerations.

The hazards that dominate other sites are quiet on this one: flood is minimal, wetland is negligible. Winter cold is the one exception, running closer to the margin (Section 5). All are documented in Sections 2 through 6, but the primary drivers above are where budget and design decisions actually live.

DECISION HIERARCHY · WHERE TO SPEND ATTENTION

PRIMARY DECISION DRIVERS

▨	**Humid-climate disease pressure**	The property's single most challenging attribute (disease 43 against the high 80s and 90s elsewhere), and the thread through every planting: it sets the spray budget, favors disease-tolerant material over susceptible cultivars, and makes canopy airflow a first-order design choice.
■	**Canopy & vigor management**	Deep, water-holding soils (soil attribute 99) drive vegetative vigor, and in a humid climate that vigor compounds disease. Divided-canopy training and floor management govern fruit quality here more than fertility does.
◪	**Block placement across the relief**	A 12.4% mean slope over 122 ft of relief means where each planting sits, its aspect, drainage, and cold-air exposure, is as consequential as what you plant. The land rewards matching plantings to blocks, not planting to the property's average.

SECONDARY CONSIDERATIONS

■	**Soil pH & amendment program**	pH reads 5.5–7.3 across the mapped units: a pH-amendment decision keyed to soil tests, not a factor that should steer variety selection.
◧	**Deer & wildlife browse**	Deer browse is a near-universal risk to young plantings, and a first-year block is the most vulnerable thing on the ground; perimeter fencing or grow tubes is the standard establishment hedge.
◪	**Spring frost & cold-air pooling**	The 3 cold-air pockets behind the tree lines (Cold Air map) carry elevated spring-frost risk for the earliest-blooming plantings.
▨	**Winter hardiness**	The winter minimum runs close to the hardiness floor of the tenderest selections; confirm it with an on-site logger before betting a block on the margin.

LOW-IMPACT · DOCUMENTED, SAFE TO DEFER

■	**Wetland & open water**	Negligible at 2% mapped; not a material constraint on the plantable interior.
■	**Flood exposure**	Zone X, minimal; documented in full, but not a constraint on planning.

Rank reflects how much each factor should shape your plan and budget, not its raw score. A high-scoring factor can still be a primary driver when it governs a costly decision, and a quiet hazard stays low even when fully documented.

From Model to Field

This is the modeled report. It reads your ground from the best public and remote data available, and every value above carries its confidence grade. The measurements below are the ones worth taking on your own soil before you commit block layout and capital: each converts a remote read into a confirmed one.

Record your readings in the right-hand column as they arrive. Where a measured value diverges materially from the model, the sections that lean on it are worth regenerating against your number.

PARAMETER	MODELED VALUE	CONF	HOW TO VERIFY	YOUR MEASURED VALUE
Soil pH & amendment need	5.5–7.3, survey range	■	Lab soil test, 3-5 cores per block	
Soil texture & water-holding	Channery loam, AWC 0.19	■	2-3 soil pits; texture by feel plus lab	
Slope & aspect by block	mean 12.4%, SW	◪	Block walk; GPS or level survey	
Growing degree days	3,372, PRISM surface	▨	On-site weather station, one full season	
Winter minimum	3 °F, zone surface	▨	On-site min/max logger, one winter	
Cold-air & frost pockets	3 pockets modeled	◪	Temperature loggers on still spring nights	
Wetland boundary	2% of area mapped	■	Professional delineation ($1,500-4,000) before any earthwork near wet edges	
Seasonal wetness & drainage	Well drained	■	Perc or dig test after heavy rain	

Sourced values (■) are firm at survey scale but still generalize across a map unit; an on-site test refines them to your blocks. Modeled and derived values (▨◪) most reward field confirmation.

02 Terrain

USGS 3DEP · DERIVED ◪ · CAPTURED 2026-07-23

Topography is the first-order control on any perennial-crop site. It governs how cold air moves across the ground at night, how much sun the planting intercepts, and whether the land can be worked, drained, and picked without engineering. Unlike climate, terrain is specific to this property and resolvable at fine scale.

> PRIMARY PLANNING CONSIDERATION Block placement is the primary planning consideration this section shapes. With 122 ft of relief and 12.4% slopes, where each planting sits, its aspect, drainage, and cold-air exposure, governs its outcome as much as what you plant. It informs block layout, not crop choice.

ELEVATION	MEAN SLOPE	ASPECT	RELIEF	FROST POCKET
625 ft ◪	12.4% ◪	229° SW ◪	122 ft ◪	3 behind canopy ◪

OBSERVATION

The property occupies a hillside centered near 625 ft, with 122 ft of relief between its high and low points. It descends on a mean gradient of 12.4% toward a southwest bearing of 229°, its lowest boundary corner is the southeast.

Relative to its surrounding neighborhood the property's mean elevation is +7 ft. The bare-earth pour-point finds no enclosed depression, but the 1 m LiDAR canopy model (Fig M3) resolves 3 pools behind tree lines: those, not the bare terrain, are the operative frost feature.

INTERPRETATION

A 12.4% gradient with 122 ft of relief is a genuine constraint on layout, though not the cold-air asset that clean-draining relief would be. The steeper pitches move cold air locally, but on balance the property collects it rather than shedding it (Section 5), so the grade does not lower spring-frost risk the way clean drainage would. Those pitches also push toward cross-slope rows, terraces or in-row cover, and deliberate erosion control from the first season.

The southwest exposure carries a favorable solar component: it accumulates heat through the growing season, and its western turn holds warmth into the afternoon, which helps ripen the later plantings and holds warmth in the fruit zone. A sun-favored face like this should also dry the canopy faster after rain, a real advantage on a humid site where disease, not heat, is the limiting factor (Section 4).

On the bare terrain the interior low drains to a boundary corner rather than forming a basin, so cold air moves off the plantable ground rather than pooling within it; the pools that remain sit behind the perimeter tree lines (Cold Air map). The southeast corner is the modeled coldest ground on the property; it is the natural place for the hardiest, latest-blooming material and the last place for the earliest bloomers.

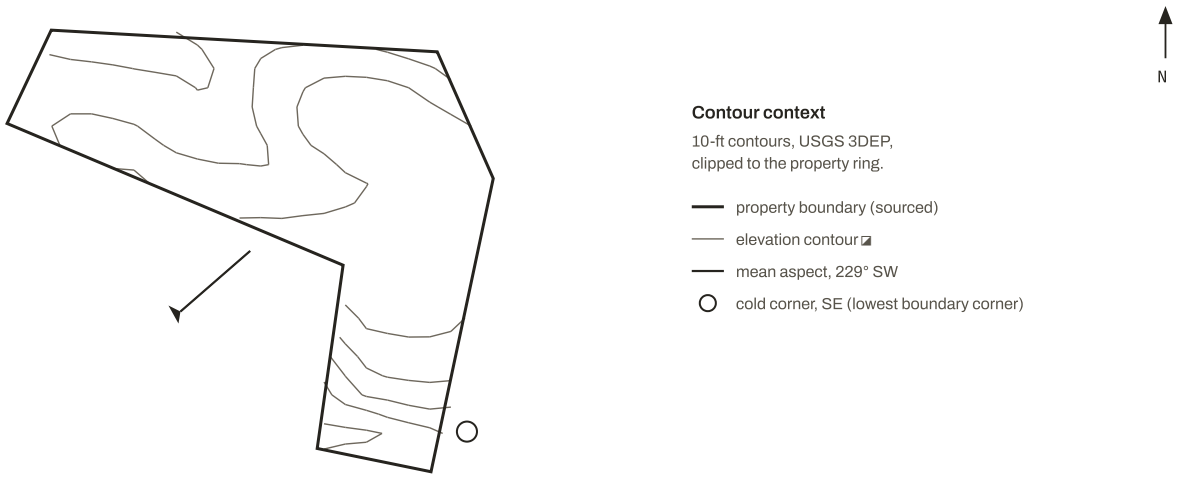


FIG. 2.1 · PROPERTY ELEVATION AND CONTOUR CONTEXT. SOLID LINES ARE HARD BOUNDARIES; DASHED LINES ARE INTERPRETIVE.

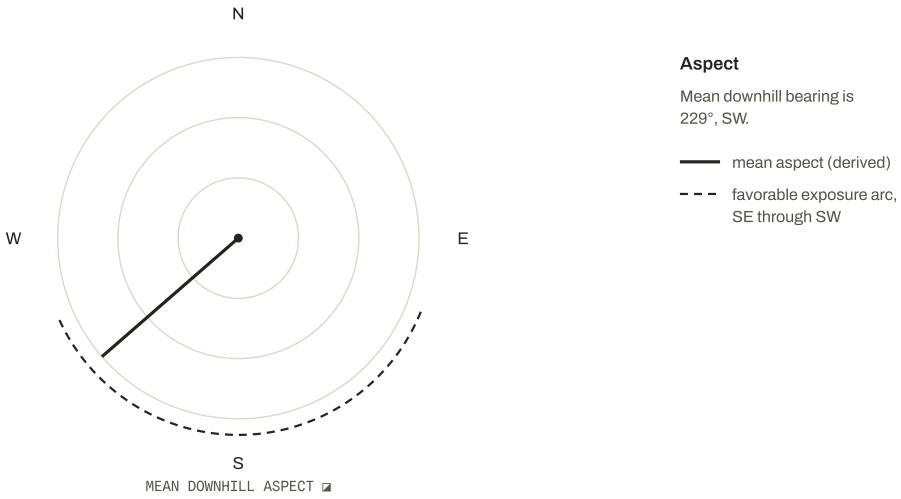


FIG. 2.2 · MEAN ASPECT AND FAVORABLE EXPOSURE ARC.

SUPPORTING NOTE · COLD-AIR DRAINAGE AND BLOCK PLACEMENT

On clear, calm nights the ground radiates heat to the sky and chills the air just above it. That chilled air is denser than its surroundings and flows downhill like water, pooling wherever the terrain encloses it. A property that drains this air to a low edge escapes the worst spring-frost events; one that traps it in a basin can sit several degrees colder on the decisive nights. Later-blooming crops shrug off a cold April night better than early bloomers, but a hard freeze after budbreak still costs shoots and crop, so the frost-draining pitches earn their keep.

Relief and slope are therefore assets, not just constraints. The colder, lower ground and the frost-draining pitches favor the hardier, later-blooming plantings; the warmest, best-drained pitches favor the tender, early, or heat-hungry material. This is a matter of placement, not amendment, and the cheapest risk mitigation a property with real relief has.

TERRAIN CHARACTERISTIC	VALUE	GRADE	NOTE
Elevation	625 ft	◪	Center of property
Mean slope	12.4%	◪	Finite difference over the elevation grid
Aspect	229° (SW)	◪	Mean downhill bearing
Relief	122 ft	◪	High point minus low point
Cold corner	southeast	◪	Lowest boundary corner, cold-air hint
Frost pocket	3 behind canopy	◪	Bare terrain drains; canopy dams form the pools
Elevation divergence	+7 ft	◪	Property mean vs neighborhood; lapse-rate input

SITE CONSIDERATIONS

- ◪ Bare-earth drainage is strong, but the LiDAR canopy model finds 3 pools of cold air behind the perimeter tree lines (Cold Air map): that pooled ground is the property's most frost-exposed ground, the least suited to the earliest-blooming plantings.
- ◪ The southeast corner is the modeled coldest ground, where the hardiest, latest-blooming plantings carry the most margin and the earliest bloomers the least.
- ◪ Steeper pitches will shape row orientation and call for deliberate erosion control and cover cropping from the first season.
- ◪ The warmest, best-drained pitches best suit tender and heat-loving plantings; the cooler, lower ground the hardier material.
- ◪ The perimeter tree lines cut both ways: they shelter the interior from desiccating winter wind, but on still nights they dam cold-air drainage (Cold Air map) and by day slow the airflow that dries the canopy, raising disease pressure behind them. Shelter against pooling and disease is the tradeoff a decision to thin or gap a stand turns on.

METHODOLOGY & PROVENANCE USGS 3DEP one-third arc-second digital elevation model, roughly 10 m ground resolution, clipped to the property boundary. Slope and aspect by finite difference; relief is the range of grid elevations within the ring; elevation divergence compares the property mean to its neighborhood cell. Frost-pocket detection uses a priority-flood pour-point fill. Values graded DERIVED ◪ on a measured surface; above a 10% NoData threshold the model degrades to a modeled fallback graded ▨. Captured 2026-07-23.

Soil Shapes

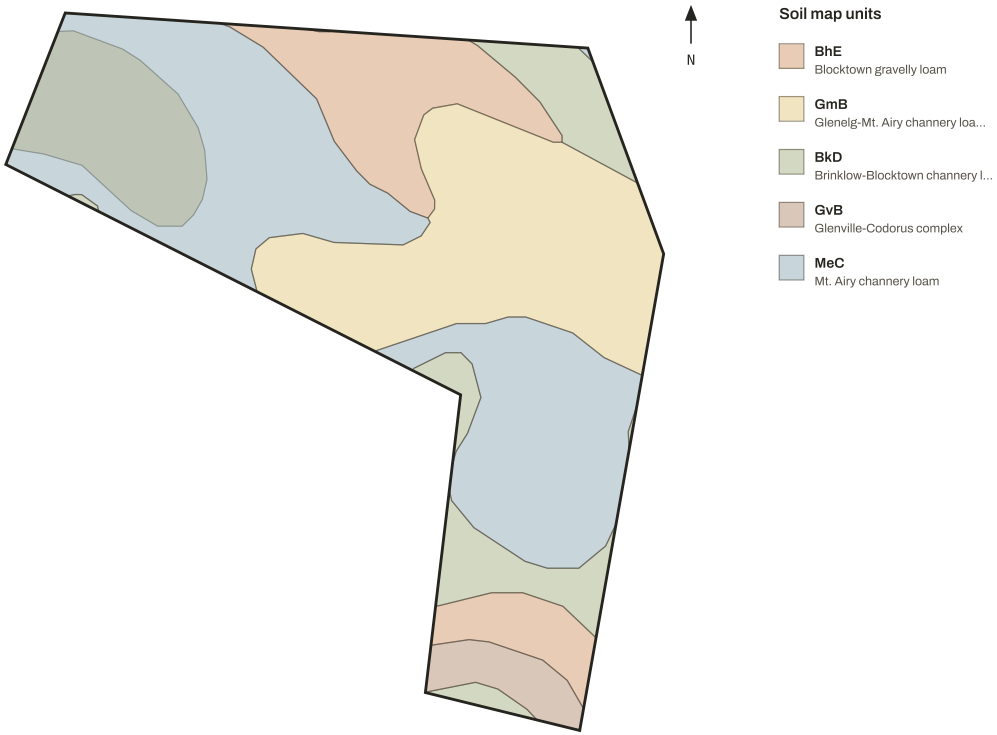


FIG. M1 · SSURGO SOIL MAP UNITS CLIPPED TO THE PROPERTY. 5 UNITS MAPPED. SOURCED ■.

The soil survey resolves the property into more than one map unit. Where those units fall matters: match the intensive plantings to the deepest, best-drained ground, and read each unit's drainage and depth in the soil section before committing blocks.

READING THIS MAP

- 5 soil map units cross the property; the best-drained of them carries the widest margin for the intensive plantings, and each unit's drainage and depth (Section 3) is what block layout turns on.
- The survey does not resolve within-unit inclusions, so the ground under a given row can depart from the mapped unit; a soil pit is what resolves it.

Topography & Water

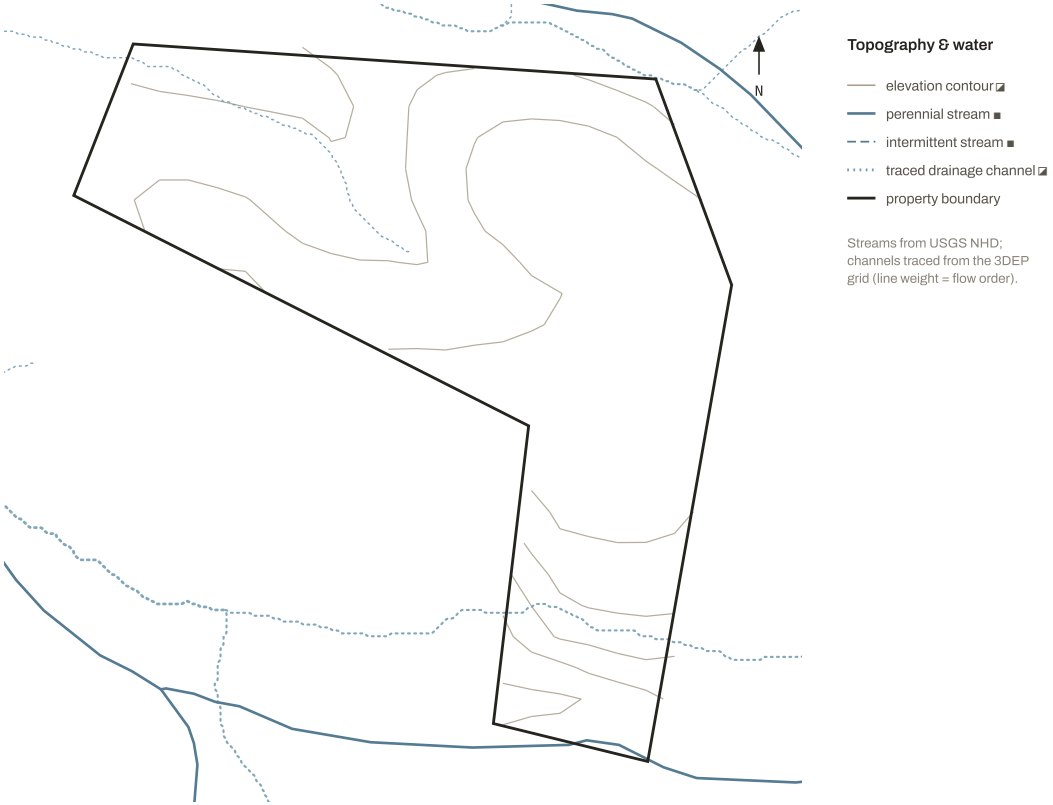


FIG. M2 · 10-FT CONTOURS WITH MAPPED STREAMS AND TRACED DRAINAGE CHANNELS. CONTOURS DERIVED ◪; STREAMS SOURCED ■.

Elevation contours and the water network together show how the property drains. Traced drainage channels reveal where water concentrates on the ground itself, ahead of any mapped stream, and those lines are where wet-season access and erosion are worth planning around.

READING THIS MAP

- The traced drainage lines are where water concentrates in wet weather, so ground along them carries the most wet-season erosion and access exposure.
- No mapped stream crosses the plantable interior; the drainage network runs to the property's low edges.

Cold Air & Frost

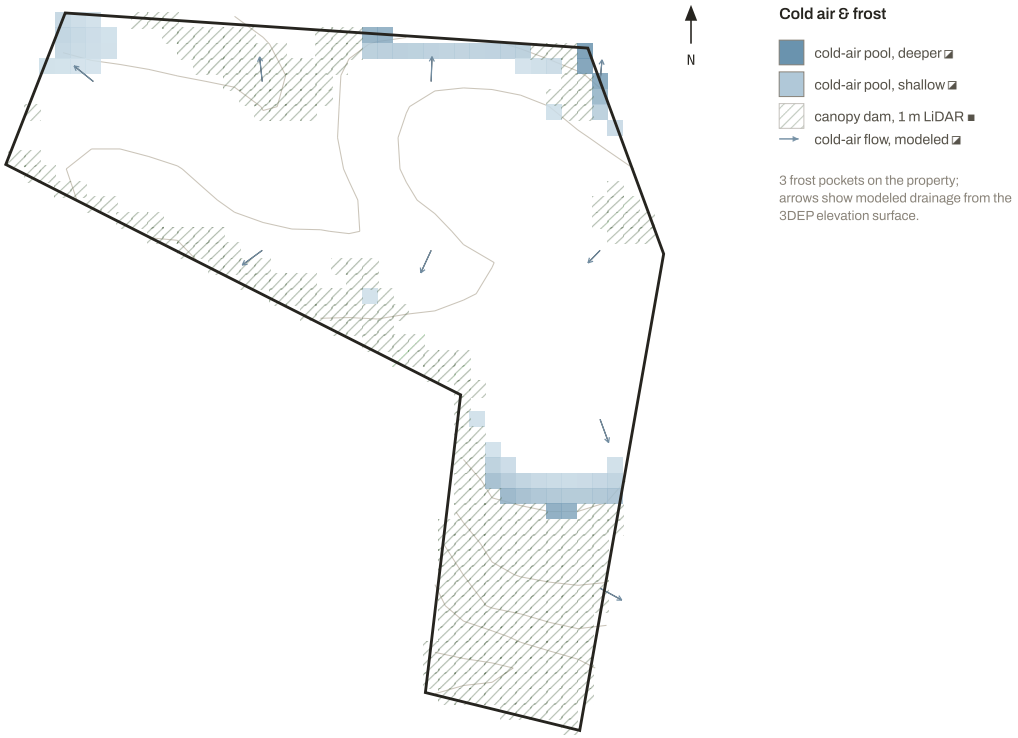


FIG. M3 · MODELED COLD-AIR FLOW DIRECTION AND POOL DEPTH FROM THE 3DEP TERRAIN SURFACE. 3 POCKETS ON THE PROPERTY. DERIVED ◪.

On still, radiative nights cold air drains downhill and pools in enclosed lows. The arrows show the modeled direction of that drainage, computed from the property's 3DEP elevation surface, and the shaded cells are the enclosed lows where it settles into a pool.

READING THIS MAP

- The flow converges on the low ground; the property collects cold air on balance, so spring-frost exposure concentrates on that low ground.
- Where the paths stall against the hatched tree lines, those are cold-air dams: the ground pooling on their uphill side carries the property's highest spring-frost exposure, sharpest for the earliest-blooming material. Where the canopy gaps, the flow escapes.

Sun Exposure

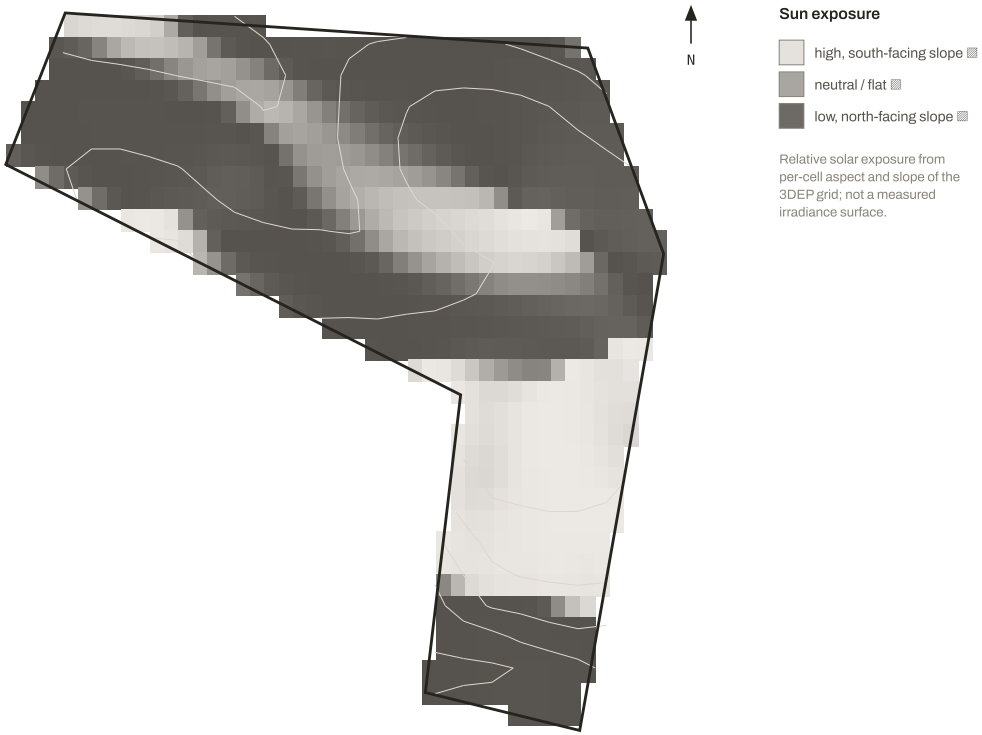


FIG. M4 · RELATIVE SOLAR EXPOSURE FROM PER-CELL ASPECT AND SLOPE. A DERIVED PROXY ◪, NOT A MEASURED IRRADIANCE SURFACE.

Relative solar exposure follows aspect and slope: south-facing pitches gather the most direct sun, north-facing the least. This governs where heat-loving plantings ripen best and where canopy drying, a real advantage on a humid site, is strongest.

READING THIS MAP

- The sunniest, south-facing pitches offer the greatest suitability margin for the most heat-demanding plantings.
- The sunnier faces also dry the canopy fastest after rain, which helps manage humid-climate disease pressure.

03 Soil

USDA SSURGO · SOURCED ■ · CAPTURED 2026-07-23

Soil sets the ceiling on how a perennial planting grows and ripens. Drainage decides whether roots stay healthy; water-holding capacity decides how hard the planting is pushed through the season; and chemistry decides what amendment the ground asks for before planting. Every crop in this plan shares a strong preference for well-drained ground, and that is where this section starts.

> PRIMARY PLANNING CONSIDERATION Soil chemistry is unlikely to decide your variety selection here. The considerations this section shapes are a pre-plant lime program to bring the acid blocks up keyed to your own soil tests (pH 5.5–7.3) and matching the most intensive plantings to the best-drained ground. Drainage, not fertility, is the soil question that matters.

DRAINAGE	TEXTURE	PH (1:1 WATER)	ORGANIC MATTER	AWC
Well drained ■	Channery loam ■	5.5–7.3 ■	2.0% ■	0.19 ■

OBSERVATION

The dominant soil unit is Glenelg-Mt. Airy channery loams, and its principal component is the Glenelg series. Surface texture is channery loam with 42% total sand and 2.0% organic matter; available water capacity is 0.19 in/in.

Reaction spans pH 5.5–7.3 (1:1 water), strongly acid to near neutral across the mapped unit. The unit is classified as farmland of statewide importance. No portion of the property is mapped as open water.

INTERPRETATION

This is a strong profile for perennial crops. Well-drained soils avoid the wet feet that fruit-tree, vine, and cane roots alike will not tolerate, and the coarse rock fragments through the profile both quicken internal drainage and warm the root zone in spring. Water-holding capacity of 0.19 in/in supplies a canopy through normal dry spells without the luxury supply that drives excess growth.

The pH span is the one item to manage by block rather than by property. At 5.5–7.3 the ground runs strongly acid to near neutral, low enough that pre-plant lime sized to a block soil test brings the acid blocks up toward the 6.0–6.5 band fruit crops target. This is routine amendment, not a structural limit.

Two limits are worth stating. The survey is mapped at 1:24,000, so it describes the dominant component of a map unit rather than the ground under a given row, and a property with real relief will hold inclusions the map does not resolve. The horizon profile in the figure is the catalog description for the mapped series, not a measurement of this property. Both are reliable for planning; neither substitutes for a soil pit before a large planting.

SUPPORTING NOTE · ONE SOIL, READ BLOCK BY BLOCK

Perennial fruit asks less of soil chemistry than of soil structure. Above all a fruit planting wants air in the root zone: standing water starves roots of oxygen and invites the root and crown rots that end plantings early, so drainage is the first thing the ground must offer. Reaction matters second, and most fruit crops sit comfortably across a wide moderately-acid-to-neutral band, so pH is a block-by-block amendment rather than a structural limit. What this argues for is planting to a soil test, not to a single property average.

Because this survey resolves the dominant component of a map unit and not the specific ground under a row, and because a hillside of this relief will carry inclusions it does not show, a small number of soil pits placed across the intended blocks is the cheapest insurance a perennial-crop planting can buy. It confirms drainage where the tender, rot-prone plantings will go and pins the pH where amendment will be sized.

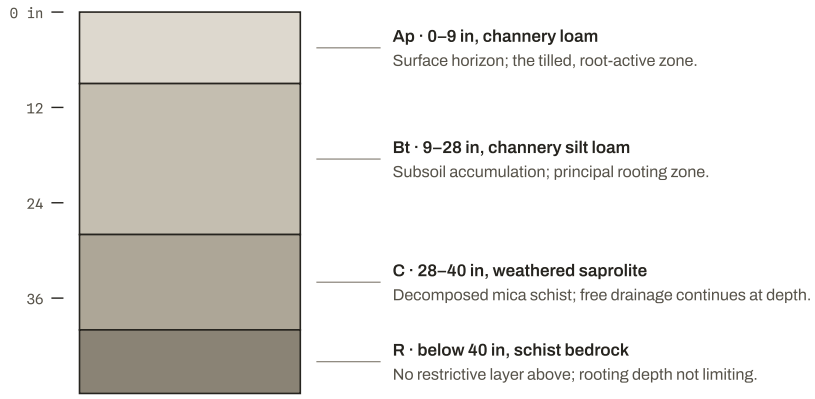


FIG. 3.1 · REPRESENTATIVE PROFILE FOR THE MAPPED SERIES (OFFICIAL SERIES DESCRIPTION). HORIZON DEPTHS ARE CATALOG VALUES, NOT PROPERTY MEASUREMENTS; SURFACE VALUES ARE SSURGO-SOURCED.

SOIL CHARACTERISTIC	VALUE	GRADE	NOTE
Map unit	Glenelg-Mt. Airy channery loams	■	Dominant unit at property
Dominant series	Glenelg	■	Principal component of the map unit
Drainage class	Well drained	■	Governs perennial-crop root health
Surface texture	Channery loam	■	Governs vigor and root-zone warming
pH (1:1 water)	5.5–7.3	■	Strongly acid to near neutral; manage by block
Organic matter	2.0%	■	Consistent with balanced growth
Available water capacity	0.19 in/in	■	Adequate without promoting excess
Total sand fraction	42%	■	Sand share of the surface
Farmland classification	Farmland of statewide importance	■	May bear on preservation and tax status
Open water share	0.0%	■	No SSURGO "W" units intersect the property

SITE CONSIDERATIONS

- Well-drained ground favors every crop in the plan, and the sharpest-draining pitches are the best-suited to the rot-prone plantings.
- Reaction spans 5.5–7.3, so any pre-plant lime application to bring the acid blocks up is sized to a block-level soil test rather than a property average.
- Rock-fragment surfaces dry quickly in the establishment years, so young plantings establish under lower moisture reserves, making irrigation capacity a significant establishment consideration.
- Inclusions the survey does not resolve are common on upland units, so a soil pit in each intended block is what resolves the ground before layout.

METHODOLOGY & PROVENANCE USDA SSURGO via the Soil Data Access service, reporting the dominant component of the map unit intersecting the property. Surface chemistry and the drainage and farmland classes are sourced values for that component. The horizon profile is the Official Series Description for the mapped series, a catalog reference. Survey scale 1:24,000 does not resolve within-property variation. Open-water share is read from SSURGO "W" map units. Sourced ■, captured 2026-07-23.

04 Climate

PRISM VIA ACIS · MODELED ▨ · CAPTURED 2026-07-23

Two questions decide a perennial-crop site: can it accumulate enough heat to ripen the fruit within its frost-free season, and what will it cost to keep that fruit clean until harvest. Heat and season answer the first for every crop in the plan; precipitation answers the second, and on a humid site it is the dominant cost. These are modeled climate normals for the grid cell containing the property.

> PRIMARY PLANNING CONSIDERATION The climate consideration here is not whether fruit ripens; at 3,372 GDD heat is ample for every planting. It is how you manage the moisture that comes with the season. Disease pressure is high, and it shapes variety choice, canopy design, and the spray budget more than ripening ever will.

GROWING DEGREE DAYS	LAST SPRING FREEZE	FIRST FALL FREEZE	FROST-FREE DAYS	ANNUAL PRECIP
3,372 ▨	May 10 ▨	Oct 31 ▨	174 ▨	48 in ▨

OBSERVATION

Growing-season heat accumulation is 3,372 growing degree days (April through October, base 50 °F, daily high capped at 86 °F), placing the property in a warm growing season. The modeled frost-free window runs May 10 to Oct 31, a span of 174 days.

Annual precipitation is 48 inches, and the site is classified high for fungal-disease pressure.

INTERPRETATION

Heat and season are not the constraint here. At 3,372 GDD the property sits well above what a perennial-crop planting needs to ripen, and the 174-day window comfortably brackets the ripening period. If anything the abundant heat argues for choosing varieties, and canopy and thinning practices, that preserve acidity and structure rather than chase sugar.

The main constraint is water from above. At 48 inches and high disease pressure, sustained leaf and fruit wetness is the defining management cost of this property, and it touches every planting: the fungal, bacterial, and rot diseases a humid season drives hardest. This is the single most important line in the report for any planting on this ground. It does not disqualify the crop, but it sets canopy architecture, spacing, and the spray program, and it belongs in the establishment budget from the first line.

One boundary is worth keeping in view: these are cell-scale normals. They describe the neighborhood, not the property, and they cannot see the cold-air behavior that terrain resolves. Where this layer and the terrain reading of frost disagree, the terrain reading (Section 2) governs at property scale.

SUPPORTING NOTE · WHY A HUMID CLIMATE IS A MANAGEMENT CLIMATE

Heat and season length set what a site can grow; humidity sets what it costs to grow it well. Fungal and bacterial pathogens need moisture on the plant surface to infect, so the number of hours that leaves and fruit stay wet, driven by rainfall, dew, and how quickly the canopy dries, is the real driver of disease pressure. An eastern site with ample rainfall rarely wants for heat or water in the soil; what it fights is water on the plant. That is why a warm, humid property is a management climate: the crops will grow, and the work is keeping them clean.

This reframes variety selection: disease-resistant and tolerant cultivars, open canopy architectures, and generous spacing for airflow are not refinements but the core of the plan. The property's real relief and favorable aspect help here, moving air and drying canopies faster than flat ground would, but they supplement a spray program rather than replace it.

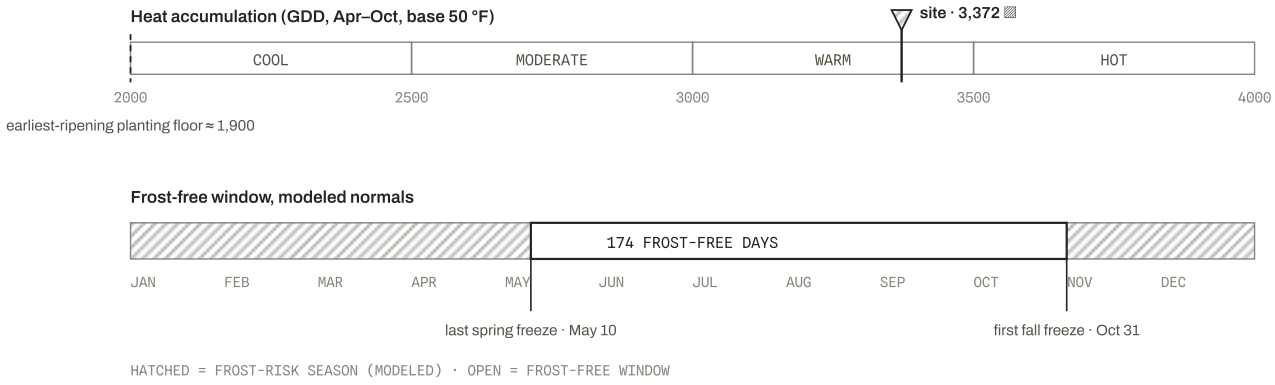


FIG. 4.1 · CLIMATE PROFILE. ALL VALUES ARE MODELED NORMALS FOR THE PRISM CELL CONTAINING THE PROPERTY.

CLIMATE CHARACTERISTIC	VALUE	GRADE	NOTE
Growing degree days	3,372	▨	a warm growing season
Last spring freeze	May 10	▨	Normal date; individual years vary
First fall freeze	Oct 31	▨	Bounds the harvest window for late ripeners
Frost-free season	174 days	▨	Comfortably brackets every planting
Annual precipitation	48 in	▨	Drives disease pressure across all crops
Disease pressure	High	▨	Classified from precipitation and humidity

SITE CONSIDERATIONS

- ▨ Heat and season length are ample for every planting, so the payoff lies with varieties and practices that preserve acidity and structure rather than chase ripeness.
- ▨ Disease pressure is the defining cost of this property; disease-resistant cultivars, open canopies, and a spray program belong in every crop's establishment budget.
- ▨ The degree-day and frost figures are modeled normals for an ~800 m cell, not property measurements; read 3,372 GDD and the frost dates as central estimates with real spread around them, and confirm with an on-site season (field-validation ledger), not as precise counts.
- ▨ These normals are cell-scale; property-scale frost behavior is read from terrain (Section 2), not from this layer.

METHODOLOGY & PROVENANCE PRISM climate normals via the ACIS GridData service. Growing degree days use the modified growing-degree-day method: April through October, base 50 °F, daily high capped at 86 °F. Frost dates are the cell's normal last-spring and first-fall freeze; the frost-free window is their span, adjusted for the property's elevation divergence from its cell. The grid cell is roughly 800 m, so property-scale deviations are not resolved. Modeled ▨, captured 2026-07-23.

05 Winter Hardiness

USDA PHZM · MODELED ▨ · CAPTURED 2026-07-23

Winter cold is the one climate event that kills a planting outright rather than merely costing a season. Its severity is a margin: how far the expected coldest night of a normal year sits above the temperature at which the least-hardy planting begins to die. Across the selected plantings that margin is set by the tenderest of them, so this section reads it against that selection.

> PRIMARY PLANNING CONSIDERATION Winter cold is a boundary condition here, not a daily constraint. It runs thin for the most exposed planting, and the consideration it raises is how much winter-hardiness margin that selection carries here.

HARDINESS ZONE	EXPECTED WINTER LOW	LEAST-HARDY, ONSET	LIMITING MARGIN
7a ▨	3 °F ▨	0 °F ◧	3 °F ◧

OBSERVATION

The property falls in USDA hardiness zone 7a, whose midpoint puts the expected annual coldest low near 3 °F. Across the selected plantings, the temperature at which wood begins to die ranges from about 0 °F for the least hardy to -10 °F for the hardiest; full kill runs colder still.

The zone is resolved by postal area (ZCTA), a coarser unit than the property, and describes a long-run expectation rather than any single winter.

INTERPRETATION

Against the least-hardy selection at roughly 0 °F, the expected low leaves a margin of about 3 °F in a typical winter, and every hardier planting carries more. That is thin for the most exposed planting, the limiting case for the plan.

The number to plan against is the tail, not the average. A zone midpoint is a central expectation; the events that kill plantings are the episodic polar intrusions that undershoot it once or twice a decade. The hardier selections shrug those off better than the tenderest; the least-hardy selection is the one to hedge, and its margin here is what an owner carries into any replant reserve.

The property's terrain works against it on the coldest nights. Because the terrain model reads it as collecting cold air on balance (Section 2), the low ground is the highest-exposure place for the least-hardy plantings.

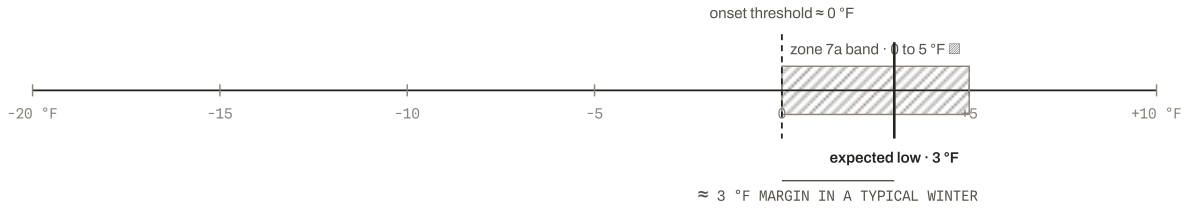


FIG. 5.1 · COLD MARGIN. THE ZONE BAND IS MODELED; THE THRESHOLD SHOWN IS WHERE THE LEAST-HARDY SELECTION BEGINS TO LOSE WOOD.

SUPPORTING NOTE · WINTER HARDINESS ACROSS THE SELECTION

Winter hardiness varies from one variety to the next, some appreciably tenderer than others, so the selection has not one cold threshold but several. The limiting one is whichever planting is least hardy, since it fails first. Reading the margin against that selection, rather than an average, is what keeps the analysis honest.

Hardiness is also not a fixed number even for a single crop. A plant acclimates through autumn to its midwinter maximum, then deacclimates in late winter, when a warm spell followed by a hard freeze can kill tissue that January cold would not have. The published thresholds are midwinter figures, so real risk concentrates at the shoulders of the season, and the usual hedges, hardy placement, renewable training, a replant reserve, are aimed at the tail rather than the average.

HARDINESS CHARACTERISTIC	VALUE	GRADE	NOTE
Hardiness zone	7a	▨	USDA PHZM 2023, by ZCTA
Expected winter low	3 °F	▨	Zone midpoint
Least-hardy selection	0 °F	◧	Limiting threshold across the plan; hardiest sits near -10 °F
Limiting margin	3 °F	◧	Expected low minus least-hardy threshold

SITE CONSIDERATIONS

- ▨ Cold margin is thin for the most exposed planting, so its winter survival is a live risk and the explicit hedge case.
- ▨ The better-draining upper ground is the best-suited to the least-hardy plantings; the low, cold-collecting corners are the least-suited to them.
- ◪ The terrain model reads the site as collecting cold air on balance, so cold exposure concentrates on the low ground.

METHODOLOGY & PROVENANCE USDA Plant Hardiness Zone Map (2023 edition), keyed by ZCTA. The expected low is the zone midpoint; the thresholds are catalog values from the crop library, read at the warm end of each variety's band (where wood begins to die), and the limiting threshold is the least hardy among them. Full kill runs colder, so a variety that clears its survival blocker can still see the tender-end damage this margin measures. ZCTA resolution is coarser than the property, so a boundary property may sit in an adjacent half-zone. Modeled ▨, captured 2026-07-23.

06 Water & Hazards

FEMA · STATE DNR · USFS · SOURCED ■ · CAPTURED 2026-07-23

Hazard layers rarely move a suitability score, but they decide what is legally and practically plantable, and they are where an avoidable and expensive surprise most often hides. Each screen below was answered directly by its authoritative public source. For this region the watch item is wetland; flood and fire are screened for completeness and led with only where they bind.

> PRIMARY PLANNING CONSIDERATION The primary planning consideration this section shapes is where the property's boundary of plantable ground actually falls. On this property that boundary is generous: no flood zone, negligible wetland, and drainage that runs to the edges leave nearly all the ground available, subject only to the field-delineation caveat below.

OBSERVATION

The FEMA flood determination is None (Zone X), area of minimal flood hazard. Wetland is mapped on 2% of the property.

Wildfire hazard potential is class 1 of 7, Very Low. No open water is mapped on the property. The riparian screen that feeds the Pierce's Disease blocker applies only to PD-pressure regions and is inert on this property.

INTERPRETATION

Wetland is mapped on 2% of the property, an edge feature to delineate rather than a material constraint on the plantable interior; confirm its edge before earthwork near the low ground.

The wetland reading deserves one qualification regardless of its result. It is a point query against a mapped inventory, and inventories systematically under-map small, seasonal, or forested wetlands. Where ground disturbance is planned near a low, wet edge, a professional field delineation, not a desktop screen, is the instrument that governs, and it is far cheaper to commission before earthwork than to litigate after it.

Wildfire is screened for completeness and is not a siting factor on this property (hazard potential is very low); where hazard potential runs High or Very High, the same screen becomes a primary siting and insurance constraint.

> SUPPORTING NOTE · AFFIRMATIVE ABSENCE VERSUS A GAP
>
> This report draws a hard line between two statements that look identical on a dashboard. "None mapped" means an authoritative source was queried and returned nothing at this location: it is a real, sourced answer, graded as measured. "Not determined" means the source could not answer at all, and it is graded unknown and never filled by inference. The wetland screen above is the first kind, an answer, not a gap.
>
> The distinction is not pedantic; it changes what an owner should do next. An affirmative absence lets planning proceed, subject to the field-delineation caveat any prudent buyer would honor. A true gap holds the relevant decision until the source recovers or a field instrument replaces it. Conflating the two, presenting a silence as a clearance, is exactly the failure this report is built to avoid.

SCREEN	SOURCE	RESULT	READING	GRADE
Flood	FEMA NFHL	Zone X, minimal	Area of minimal flood hazard	■
Wetland	Maryland DNR	2% mapped	Wetland intersects; delineation advised	■
Wildfire	USFS WHP	Class 1 of 7, Very Low	Low; not a siting factor here	■
Open water	USDA SSURGO	0.0% of property	No mapped open water	■
Pierce's Disease	Region baseline	Not applicable	Applies to PD-pressure regions only; inert here	–

SITE CONSIDERATIONS

- A small wetland (2% mapped) sits at an edge rather than on the plantable interior; its boundary resolves by field delineation before earthwork near the low ground, but it does not bound the block plan.
- The wetland screen is a point query, not a delineation. Disturbing a jurisdictional wetland without a permit carries real regulatory exposure (stop-work orders, fines, mandated restoration), so where earthwork is planned near a low, wet edge, a professional delineation ($1,500-4,000) is the governing instrument, and far cheaper before the fact than after.
- Flood exposure is minimal on the FEMA layer; no floodplain constraint on the plantable area.

METHODOLOGY & PROVENANCE FEMA National Flood Hazard Layer; a state or national wetland inventory, routed by property state to the most authoritative source (Maryland DNR); USFS Wildfire Hazard Potential; SSURGO "W" map units for open water; and USGS NHD flowlines for the California Pierce's Disease screen. Each is a point or property query answered directly by its steward, sourced ■, captured 2026-07-23.

07 Planting Priorities

PLANTINGS THE LAND FAVORS, RANKED · THE LIMITING FACTOR

Tiers rank how cleanly the land meets each variety's needs, strongest fit first, by the single attribute on which the site falls furthest short of that variety. They prioritize; they do not prescribe. A Tier 3 fit can still be the right planting for a defined purpose.

1 TIER

Cleanly matched to this land

Every attribute sits inside the variety's needs. The land asks nothing unusual of it beyond the ordinary care of its class.

Chambourcin VINEYARD

Its needs sit comfortably inside what this ground offers.

Norton VINEYARD

Its needs sit comfortably inside what this ground offers.

2 TIER

Matched, with one attribute to manage

A sound fit on this ground, with a single layer that falls short of the variety's ideal and turns into a real, plannable management cost.

Cabernet Franc VINEYARD

It faces more disease pressure here than it shrugs off; budget a spray program.

Albariño VINEYARD

It faces more disease pressure here than it shrugs off; budget a spray program.

Vidal Blanc VINEYARD

This site runs warmer than it ripens best in.

3 TIER

Workable, on the site's terms

The land falls short of the variety's needs on one attribute by enough to shape the outcome. A fit for a specific purpose, not a default choice.

Chardonnay VINEYARD

This site runs warmer than it ripens best in.

08 Vineyard

6 SELECTED · CROP INTELLIGENCE LIBRARY × SITE

The vineyard selections are examined in turn. The 6 grapes chosen here lean toward the disease-tolerant hybrids, the tolerant end matched to this humid site's disease load, and each is tested in full against the property's land: how its needs meet this ground, which blockers it clears, and what it will ask of the grower. The property-wide constraints, disease pressure, drainage, cold, and the hazard screens, are set once in Sections 2 through 6 and apply to every planting; each variety below is read only for what is specific to it.

SELECTIONS IN THIS CLASS

Chambourcin · hybrid red	TIER 1 · Cleanly matched to this land
Norton · hybrid red	TIER 1 · Cleanly matched to this land
Cabernet Franc · vinifera red	TIER 2 · Matched, with one attribute to manage
Albariño · vinifera white	TIER 2 · Matched, with one attribute to manage
Vidal Blanc · hybrid white	TIER 2 · Matched, with one attribute to manage
Chardonnay · vinifera white	TIER 3 · Workable, on the site's terms

SHARED MANAGEMENT ON THIS SITE

The less disease-tolerant selections here (Cabernet Franc, Chardonnay, and Albariño) carry the heaviest management load: against this property's high humid-season disease pressure the answer is the same, a fuller and sustained fungicide program, an open canopy trained for airflow, and the airiest, best-draining, most sun-exposed ground the property offers (see the Sun Exposure and Cold Air maps). A shaded, still, low block doubles the disadvantage. Each variety page below notes only where that variety departs from this baseline.

Chambourcin

Hybrid red

Its needs sit comfortably inside what this ground offers.

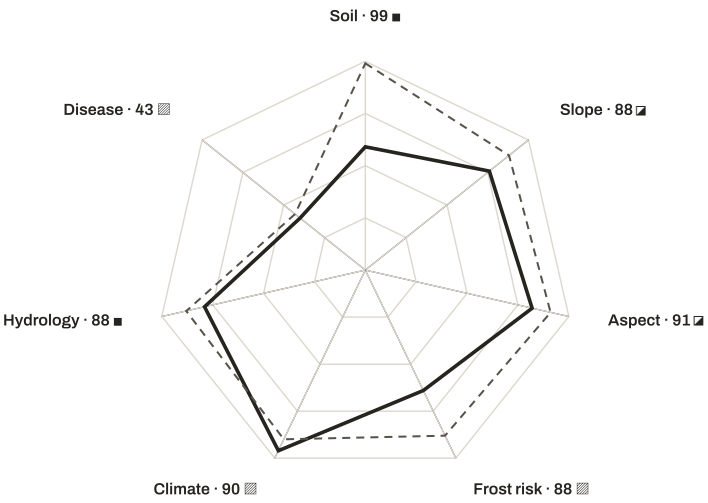
Chambourcin is a clean fit here: it clears every hard blocker this land applies, and no attribute falls short of what it needs. The trait that earns that ranking on humid ground is its high disease tolerance, precisely what a wet climate rewards. Its mid-season ripening keeps it clear of the season's extremes.

The one thing Chambourcin will ask for is canopy discipline: on this property's deep, water-holding soils a high-vigor vine runs to wood, so a divided or high-cordon training system and attentive floor management are what keep that vigor in fruit rather than in shade.

BLOCKER RESULTS

BLOCKER	VARIETAL INPUT	SITE INPUT	RESULT
Winter cold	Moderately tender, ~-5 to -15 °F ▨	Expected low 3 °F ▨	**Pass**
Season to ripen	Needs ≈ 2,750 GDD ◧	3,372 GDD ▨	**Pass**
Disease pressure	Susceptibility from crop library ◧	High pressure ▨	**Pass**
Heat ceiling	Ripens best near ≈ 3,050 GDD ◧	3,372 GDD, above optimum ▨	**Pass · runs warm**
Pierce's Disease	Vector-borne bacterial risk	Mid-Atlantic pressure: low ◪	**Pass**

Varietal inputs are crop-library estimates (◧); the GDD figure is a class-level heat reference, not a variety-specific measurement, so varieties of a type may share it.



Site vs varietal ideal

varietal ideal

site profile

What binds Chambourcin here is heat, which a more-is-better radar cannot show: at 3,372 GDD the season runs above its ~3,050 GDD optimum, the warm-style signal behind its tier. The attributes below read how the land fits; the heat ceiling sits off the figure.

FIG. 8.1 · SEVEN-AXIS SUITABILITY, SITE PROFILE AGAINST VARIETAL IDEAL. AXIS GRADES SHOWN AT LABELS.

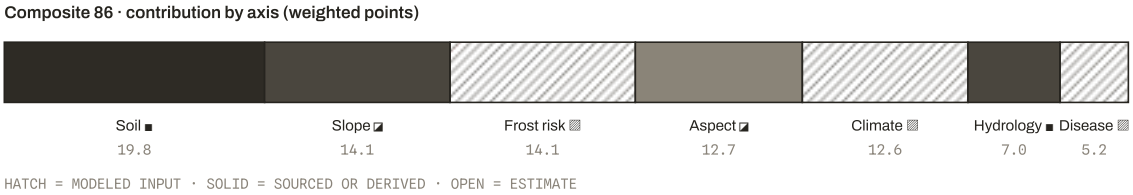


FIG. 8.2 · WHERE THE COMPOSITE COMES FROM. SEGMENT WIDTH = AXIS SCORE × WEIGHT. A LOW-SCORING AXIS CONTRIBUTES LITTLE TO THE COMPOSITE YET CAN STILL BE THE LIMITING FACTOR: THE SCORE ASKS WHETHER THE LAND CAN GROW THE VARIETY, NOT WHAT GROWING IT WELL WILL COST.

CONSIDERATIONS · ASSESSMENT CONFIDENCE AND THE EVIDENCE BEHIND EACH

Vine vigor HIGH CONF. ■ FIRM	Fertile site + a high-vigor variety means heavy canopy work each year, and can dilute fruit unless managed.
Training system MODERATE CONF. ◧ ESTIMATE	Semi-trailing habit: leans toward a high-cordon / divided canopy rather than strict VSP; factor it into trellis design.
Red-pulp blender MODERATE CONF. ◧ ESTIMATE	Red-pulp (teinturier) variety: useful as a color/structure blending component independent of skin extraction. Worth knowing if you're planning a blending program; less relevant for a single-varietal program.
Winter cold hardiness MODERATE CONF. ▨ MODELED	Your coldest years near 3°F clear this variety's -15°F survival limit; measured to where its wood begins to die (~-5°F), the working margin is 8°F, an adequate margin, comfortable but not a cushion to lean on.
Season length to ripen MODERATE CONF. ▨ MODELED	Your ~3372 GDD runs comfortably over this variety's ~3050 optimum. Its high heat tolerance leaves margin to spare here: the season runs warm for it, which steers style riper, but heat stress is unlikely even in hot vintages.
Soil pH HIGH CONF. ■ FIRM	Your soil's pH 5.5–7.3 overlaps Chambourcin's preferred 6.0–7.0; amend the blocks that fall outside it to a soil test.
Drainage / wet feet HIGH CONF. ■ FIRM	Your well-drained ground meets what this variety needs.
Disease pressure (humid-climate) HIGH CONF. ▨ MODELED	Disease management runs regular: a standard spray program through the season keeps it in check.
Spring frost pocket MODERATE CONF. ◪ DERIVED	The property's cold-air analysis maps where frost pools; Chambourcin breaks bud late, which dodges most late frosts on that ground. Off the lowest ground it stays manageable.
Rootstock MODERATE CONF. ◧ ESTIMATE	Own-rooted is viable for this variety (cheaper establishment, no graft union) on phylloxera-free or pure-sand sites. Otherwise, graft to a phylloxera-resistant rootstock.
Acid retention HIGH CONF. ◧ ESTIMATE	Naturally high-acid: at a warm site like yours it holds wine structure well, especially if your nights cool down enough to lock acids in (we don't model nighttime cooling yet; verify locally).

ESTABLISHMENT COST	FIRST HARVEST	MATURE YIELD	MANAGEMENT
$10k–$16k / acre ◧	Year 3 ◧	4.0–6.0 t/ac ◧	High ◧

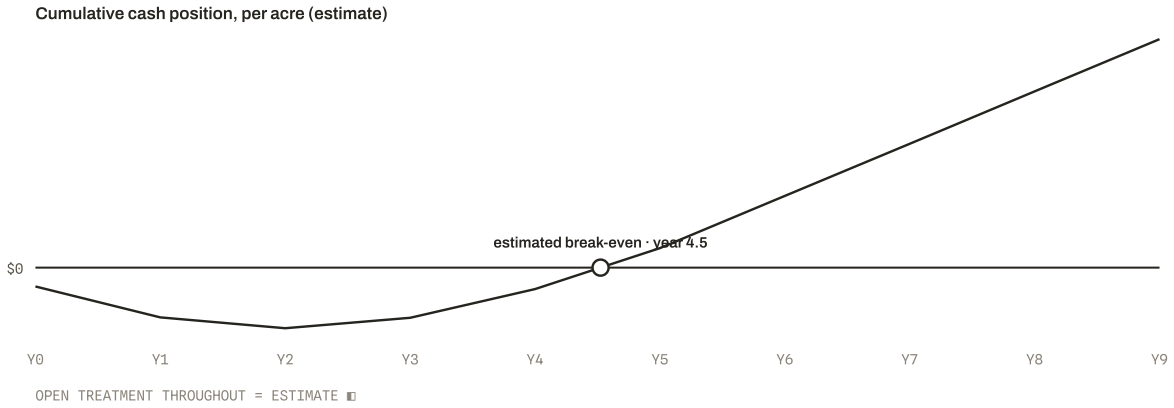


FIG. 8.3 · CASH POSITION FROM ESTABLISHMENT THROUGH MATURITY. THE ZERO-CROSSING IS A WINDOW, NOT A DATE.

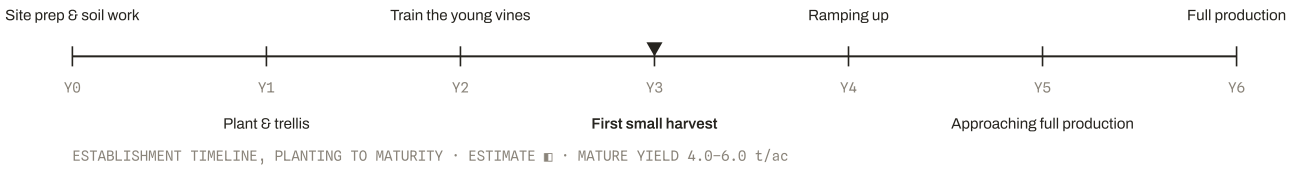


FIG. 8.4 · YEAR-BY-YEAR ESTABLISHMENT SEQUENCE.

METRIC	VALUE	GRADE	NOTE
Establishment cost	$10k to $16k / acre	◧	Through year 2, excluding land
Time to first harvest	3 years	◧	Light crop; meaningful volume follows
Expected yield at maturity	4.0 to 6.0 tons / acre	◧	Quality-oriented cropping levels
Revenue potential	$8k to $14k / acre	◧	Wholesale low, direct or estate high; channel sets it
Management complexity	High	◧	Driven by disease pressure

The economics read favorably: establishment stays on the higher side but a high-tolerance variety keeps the spray line contained, so the return leans on ordinary execution rather than on capturing a premium channel.

METHODOLOGY & PROVENANCE Cost, yield, timeline, and revenue ranges come from the Crop Intelligence Library's regional references for the crop class, per acre. The revenue band is a market range, not a site output: its low end approximates wholesale fruit, its high end direct or estate sales. The cash path applies a standard cost schedule and yield ramp; the zero-crossing is a window, not a date, and figures are not adjusted for this property's site preparation. Graded ESTIMATE ◧.

Norton

Hybrid red

Its needs sit comfortably inside what this ground offers.

Norton is a clean fit here: it clears every hard blocker this land applies, and no attribute falls short of what it needs. The trait that earns that ranking on humid ground is its very high disease tolerance, precisely what a wet climate rewards. It ripens late, so reserve the warmest, most sheltered ground to finish it cleanly.

The one thing Norton will ask for is canopy discipline: on this property's deep, water-holding soils a high-vigor vine runs to wood, so a divided or high-cordon training system and attentive floor management are what keep that vigor in fruit rather than in shade.

BLOCKER RESULTS

BLOCKER	VARIETAL INPUT	SITE INPUT	RESULT
Winter cold	Moderately hardy, ~-10 to -15 °F ▨	Expected low 3 °F ▨	**Pass**
Season to ripen	Needs ≈ 2,750 GDD ◧	3,372 GDD ▨	**Pass · caution**
Disease pressure	Susceptibility from crop library ◧	High pressure ▨	**Pass**
Pierce's Disease	Vector-borne bacterial risk	Mid-Atlantic pressure: low ◪	**Pass**

Varietal inputs are crop-library estimates (◧); the GDD figure is a class-level heat reference, not a variety-specific measurement, so varieties of a type may share it.

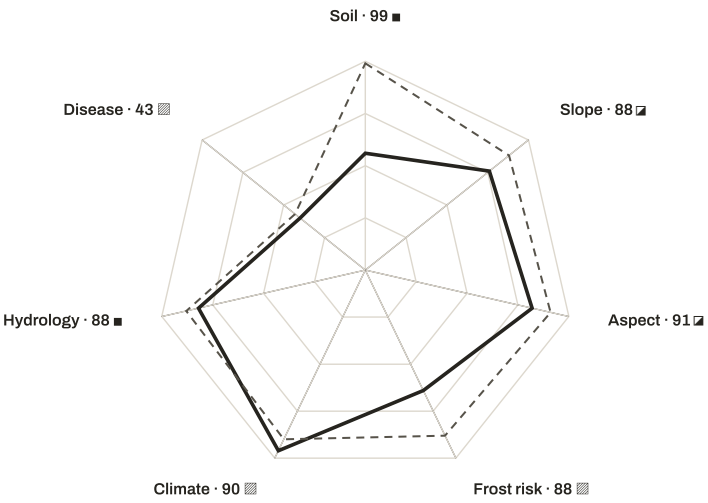


FIG. 8.5 · SEVEN-AXIS SUITABILITY, SITE PROFILE AGAINST VARIETAL IDEAL. AXIS GRADES SHOWN AT LABELS.

COMPOSITE BASIS

The contribution profile below the radar is the property's, built from the same seven attribute scores and fixed weights for every variety, so it is identical here and shown in full under Chambourcin. What changes for Norton is the varietal-ideal overlay on the radar: this is Norton measured against its own needs.

CONSIDERATIONS · ASSESSMENT CONFIDENCE AND THE EVIDENCE BEHIND EACH

Season length to ripen MODERATE CONF. ▨ MODELED	Your ~3372 GDD clears this variety's ~2750 ripening floor but sits below its ~3500 optimum: it ripens here, though cool vintages will run late.
Vine vigor HIGH CONF. ■ FIRM	Fertile site + a high-vigor variety means heavy canopy work each year, and can dilute fruit unless managed.
Training system MODERATE CONF. ◧ ESTIMATE	Semi-trailing habit: leans toward a high-cordon / divided canopy rather than strict VSP; factor it into trellis design.
Winter cold hardiness MODERATE CONF. ▨ MODELED	Your coldest years near 3°F clear this variety's -15°F survival limit; measured to where its wood begins to die (~-10°F), the working margin is 13°F, clearing winter with room to spare.
Soil pH HIGH CONF. ■ FIRM	Your soil's pH 5.5–7.3 overlaps Norton's preferred 5.5–6.8; amend the blocks that fall outside it to a soil test.
Drainage / wet feet HIGH CONF. ■ FIRM	Your well-drained ground meets what this variety needs.
Disease pressure (humid-climate) HIGH CONF. ▨ MODELED	Disease management runs regular: a standard spray program through the season keeps it in check.
Spring frost pocket MODERATE CONF. ◪ DERIVED	The property's cold-air analysis maps where frost pools; Norton breaks bud late, which dodges most late frosts on that ground. Off the lowest ground it stays manageable.
Rootstock MODERATE CONF. ◧ ESTIMATE	Own-rooted is viable for this variety (cheaper establishment, no graft union) on phylloxera-free or pure-sand sites. Otherwise, graft to a phylloxera-resistant rootstock.
Acid retention HIGH CONF. ◧ ESTIMATE	Naturally high-acid: at a warm site like yours it holds wine structure well, especially if your nights cool down enough to lock acids in (we don't model nighttime cooling yet; verify locally).

ESTABLISHMENT COST	FIRST HARVEST	MATURE YIELD	MANAGEMENT
$11k–$17k / acre ◧	Year 3 ◧	3.0–5.0 t/ac ◧	High ◧

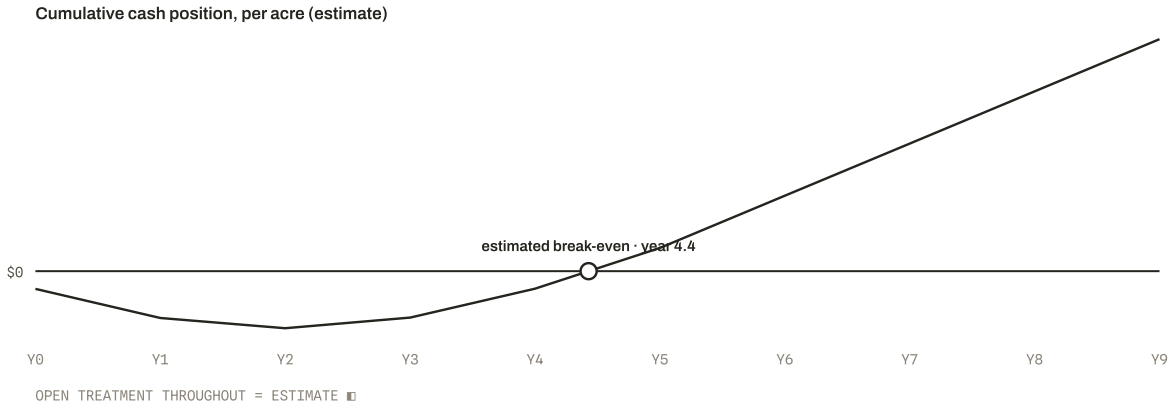


FIG. 8.6 · CASH POSITION FROM ESTABLISHMENT THROUGH MATURITY. THE ZERO-CROSSING IS A WINDOW, NOT A DATE.

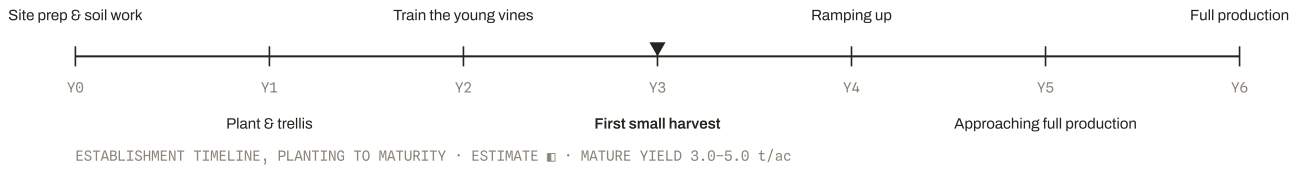


FIG. 8.7 · YEAR-BY-YEAR ESTABLISHMENT SEQUENCE.

METRIC	VALUE	GRADE	NOTE
Establishment cost	$11k to $17k / acre	◧	Through year 2, excluding land
Time to first harvest	3 years	◧	Light crop; meaningful volume follows
Expected yield at maturity	3.0 to 5.0 tons / acre	◧	Quality-oriented cropping levels
Revenue potential	$9k to $16k / acre	◧	Wholesale low, direct or estate high; channel sets it
Management complexity	High	◧	Driven by disease pressure

The economics read favorably: establishment stays on the higher side but a very high-tolerance variety keeps the spray line contained, so the return leans on ordinary execution rather than on capturing a premium channel.

METHODOLOGY & PROVENANCE How to read this cash flow, the cost basis, and the sales-channel assumption are set out under Chambourcin; they are identical here. The figures above are specific to Norton.

Cabernet Franc

Vinifera red

Cabernet Franc will grow here, but the useful question is not whether to plant it; it is what it will demand. It faces more disease pressure here than it shrugs off; budget a spray program. As a moderate-tolerance vinifera it carries a spray and canopy burden the disease-tolerant hybrids alongside it do not, with mid-season ripening that neither helps nor hurts that line.

The consequence is concrete. For Cabernet Franc the burden is the class baseline set out above, carried in full: its mid-season ripening gives it neither the early variety's escape from the wet weeks nor the late variety's added exposure to them.

> ACROSS THE SET
>
> Set against Chambourcin, a clean fit on this ground, Cabernet Franc sits a tier lower for one reason: it is the less disease-tolerant of the two. That is the same land meeting a different variety, not a difference in the land, and it is what separates their tiers here.

BLOCKER RESULTS

BLOCKER	VARIETAL INPUT	SITE INPUT	RESULT
Winter cold	Moderately tender, ~-5 to -15 °F ▨	Expected low 3 °F ▨	**Pass**
Season to ripen	Needs ≈ 2,750 GDD ◧	3,372 GDD ▨	**Pass**
Disease pressure	Susceptibility from crop library ◧	High pressure ▨	**Pass · caution**
Heat ceiling	Ripens best near ≈ 3,050 GDD ◧	3,372 GDD, above optimum ▨	**Pass · runs warm**
Pierce's Disease	Vector-borne bacterial risk	Mid-Atlantic pressure: low ◪	**Pass**

Varietal inputs are crop-library estimates (◧); the GDD figure is a class-level heat reference, not a variety-specific measurement, so varieties of a type may share it.

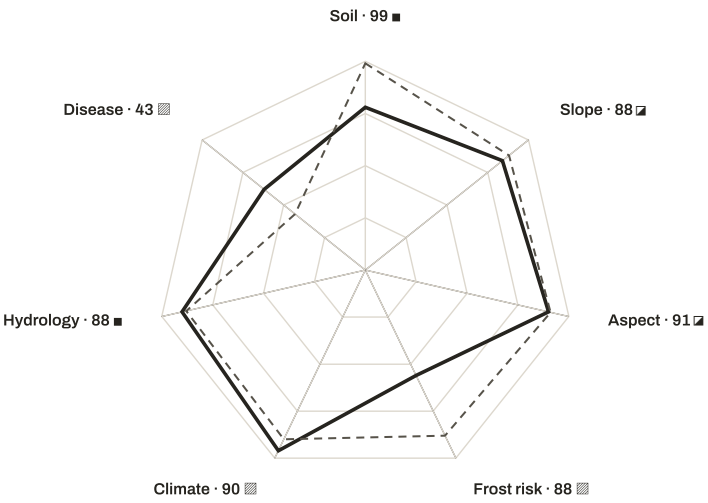


FIG. 8.8 · SEVEN-AXIS SUITABILITY, SITE PROFILE AGAINST VARIETAL IDEAL. AXIS GRADES SHOWN AT LABELS.

COMPOSITE BASIS

The contribution profile below the radar is the property's, built from the same seven attribute scores and fixed weights for every variety, so it is identical here and shown in full under Chambourcin. What changes for Cabernet Franc is the varietal-ideal overlay on the radar: this is Cabernet Franc measured against its own needs.

CONSIDERATIONS · ASSESSMENT CONFIDENCE AND THE EVIDENCE BEHIND EACH

Disease pressure (humid-climate) HIGH CONF. ▨ MODELED	Disease management runs intensive: a proactive, sustained spray program through the season. Like most vinifera, it has little built-in resistance to downy mildew, powdery mildew, and black rot.
Rootstock MODERATE CONF. ◧ ESTIMATE	Must be grafted: factor rootstock selection and graft cost into establishment (we presume phylloxera present until proven otherwise).
Winter cold hardiness MODERATE CONF. ▨ MODELED	Your coldest years near 3°F clear this variety's -15°F survival limit; measured to where its wood begins to die (~-5°F), the working margin is 8°F, an adequate margin, comfortable but not a cushion to lean on.
Season length to ripen MODERATE CONF. ▨ MODELED	Your ~3372 GDD runs comfortably over this variety's ~3050 optimum. Its high heat tolerance leaves margin to spare here: the season runs warm for it, which steers style riper, but heat stress is unlikely even in hot vintages.
Soil pH HIGH CONF. ■ FIRM	Your soil's pH 5.5–7.3 overlaps Cabernet Franc's preferred 6.0–7.0; amend the blocks that fall outside it to a soil test.
Drainage / wet feet HIGH CONF. ■ FIRM	Your well-drained ground meets what this variety needs.
Spring frost pocket MODERATE CONF. ◪ DERIVED	The property's cold-air analysis maps where frost pools; Cabernet Franc breaks bud mid, which dodges most late frosts on that ground. Off the lowest ground it stays manageable.
Vine vigor HIGH CONF. ■ FIRM	This variety's moderate vigor is easy to balance on your ground.

ESTABLISHMENT COST	FIRST HARVEST	MATURE YIELD	MANAGEMENT
$14k–$20k / acre ◧	Year 3 ◧	3.0–5.0 t/ac ◧	High ◧

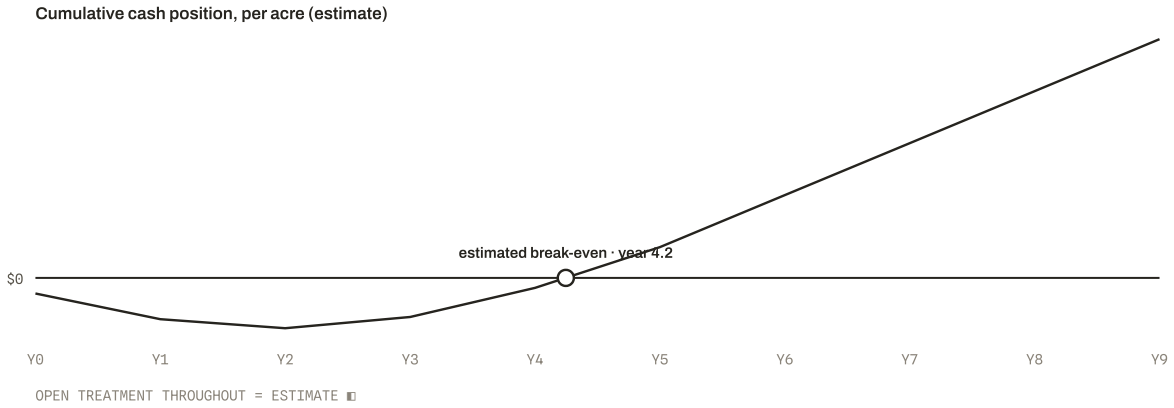


FIG. 8.9 · CASH POSITION FROM ESTABLISHMENT THROUGH MATURITY. THE ZERO-CROSSING IS A WINDOW, NOT A DATE.

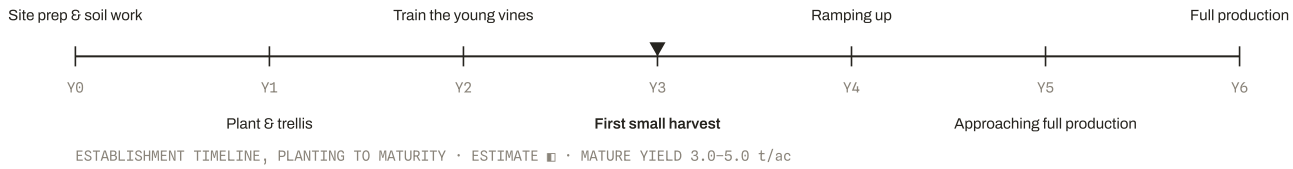


FIG. 8.10 · YEAR-BY-YEAR ESTABLISHMENT SEQUENCE.

METRIC	VALUE	GRADE	NOTE
Establishment cost	$14k to $20k / acre	◧	Through year 2, excluding land
Time to first harvest	3 years	◧	Light crop; meaningful volume follows
Expected yield at maturity	3.0 to 5.0 tons / acre	◧	Quality-oriented cropping levels
Revenue potential	$12k to $22k / acre	◧	Wholesale low, direct or estate high; channel sets it
Management complexity	High	◧	Driven by disease pressure

The higher spray and canopy burden is an annual cost, not a one-time line, so profitability leans on the sales channel more than on yield: a purchase agreement or an estate outlet moves the margin most.

METHODOLOGY & PROVENANCE How to read this cash flow, the cost basis, and the sales-channel assumption are set out under Chambourcin; they are identical here. The figures above are specific to Cabernet Franc.

Albariño

Vinifera white

Albariño will grow here, but the useful question is not whether to plant it; it is what it will demand. It faces more disease pressure here than it shrugs off; budget a spray program. As a moderate-tolerance vinifera it carries a spray and canopy burden the disease-tolerant hybrids alongside it do not, with mid-season ripening that neither helps nor hurts that line.

The consequence is concrete. For Albariño the burden is the class baseline set out above, carried in full: its mid-season ripening gives it neither the early variety's escape from the wet weeks nor the late variety's added exposure to them. Secondary items, night cooling and rootstock, are developed in the considerations.

> ACROSS THE SET
>
> Set against Chambourcin, a clean fit on this ground, Albariño sits a tier lower for one reason: it is the less disease-tolerant of the two. That is the same land meeting a different variety, not a difference in the land, and it is what separates their tiers here.

BLOCKER RESULTS

BLOCKER	VARIETAL INPUT	SITE INPUT	RESULT
Winter cold	Moderately tender, ~-5 to -10 °F ▨	Expected low 3 °F ▨	**Pass**
Season to ripen	Needs ≈ 2,750 GDD ◧	3,372 GDD ▨	**Pass**
Disease pressure	Susceptibility from crop library ◧	High pressure ▨	**Pass · caution**
Heat ceiling	Ripens best near ≈ 3,050 GDD ◧	3,372 GDD, above optimum ▨	**Pass · runs warm**
Pierce's Disease	Vector-borne bacterial risk	Mid-Atlantic pressure: low ◪	**Pass**

Varietal inputs are crop-library estimates (◧); the GDD figure is a class-level heat reference, not a variety-specific measurement, so varieties of a type may share it.

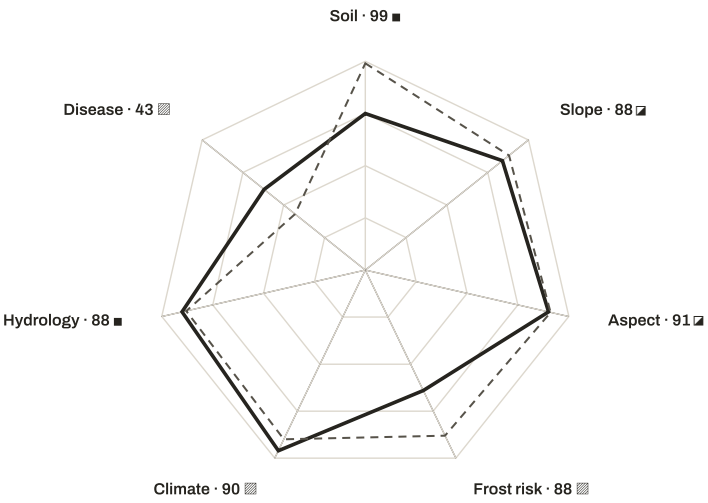


FIG. 8.11 · SEVEN-AXIS SUITABILITY, SITE PROFILE AGAINST VARIETAL IDEAL. AXIS GRADES SHOWN AT LABELS.

COMPOSITE BASIS

The contribution profile below the radar is the property's, built from the same seven attribute scores and fixed weights for every variety, so it is identical here and shown in full under Chambourcin. What changes for Albariño is the varietal-ideal overlay on the radar: this is Albariño measured against its own needs.

CONSIDERATIONS · ASSESSMENT CONFIDENCE AND THE EVIDENCE BEHIND EACH

Disease pressure (humid-climate) HIGH CONF. ▨ MODELED	Disease management runs intensive: a proactive, sustained spray program through the season. Like most vinifera, it has little built-in resistance to downy mildew, powdery mildew, and black rot.
Night cooling HIGH CONF. ◧ ESTIMATE	This variety leans on cool nights to hold its acid and freshness in a warm climate. Whether it works here depends on your site's diurnal swing: verify locally; we don't model nighttime cooling yet.
Rootstock MODERATE CONF. ◧ ESTIMATE	Must be grafted: factor rootstock selection and graft cost into establishment (we presume phylloxera present until proven otherwise).
Winter cold hardiness MODERATE CONF. ▨ MODELED	Your coldest years near 3°F clear this variety's -10°F survival limit; measured to where its wood begins to die (~-5°F), the working margin is 8°F, an adequate margin, comfortable but not a cushion to lean on.
Season length to ripen MODERATE CONF. ▨ MODELED	Your ~3372 GDD runs comfortably over this variety's ~3050 optimum. Its high heat tolerance leaves margin to spare here: the season runs warm for it, which steers style riper, but heat stress is unlikely even in hot vintages.
Soil pH HIGH CONF. ■ FIRM	Your soil's pH 5.5–7.3 overlaps Albariño's preferred 6.0–7.0; amend the blocks that fall outside it to a soil test.
Drainage / wet feet HIGH CONF. ■ FIRM	Your well-drained ground meets what this variety needs.
Spring frost pocket MODERATE CONF. ◪ DERIVED	The property's cold-air analysis maps where frost pools; Albariño breaks bud mid, which dodges most late frosts on that ground. Off the lowest ground it stays manageable.
Vine vigor HIGH CONF. ■ FIRM	This variety's moderate vigor is easy to balance on your ground.
Acid retention HIGH CONF. ◧ ESTIMATE	Naturally high-acid: at a warm site like yours it holds wine structure well, especially if your nights cool down enough to lock acids in (we don't model nighttime cooling yet; verify locally).

ESTABLISHMENT COST	FIRST HARVEST	MATURE YIELD	MANAGEMENT
$15k–$21k / acre ◧	Year 3 ◧	3.0–5.0 t/ac ◧	High ◧

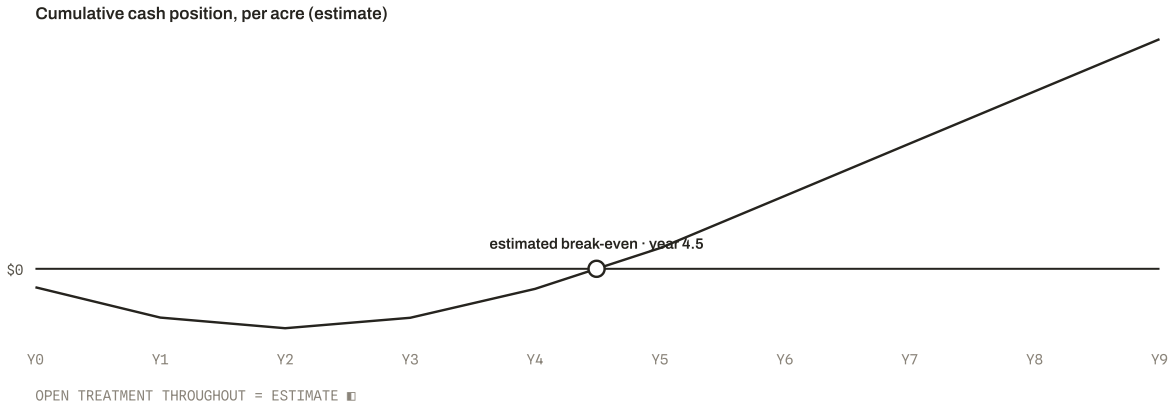


FIG. 8.12 · CASH POSITION FROM ESTABLISHMENT THROUGH MATURITY. THE ZERO-CROSSING IS A WINDOW, NOT A DATE.

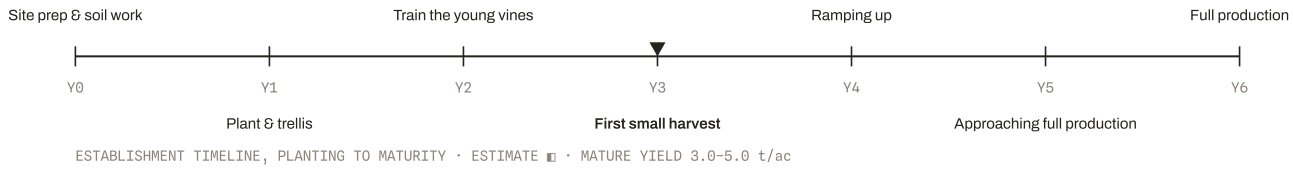


FIG. 8.13 · YEAR-BY-YEAR ESTABLISHMENT SEQUENCE.

METRIC	VALUE	GRADE	NOTE
Establishment cost	$15k to $21k / acre	◧	Through year 2, excluding land
Time to first harvest	3 years	◧	Light crop; meaningful volume follows
Expected yield at maturity	3.0 to 5.0 tons / acre	◧	Quality-oriented cropping levels
Revenue potential	$11k to $20k / acre	◧	Wholesale low, direct or estate high; channel sets it
Management complexity	High	◧	Driven by disease pressure

The higher spray and canopy burden is an annual cost, not a one-time line, so profitability leans on the sales channel more than on yield: a purchase agreement or an estate outlet moves the margin most.

METHODOLOGY & PROVENANCE How to read this cash flow, the cost basis, and the sales-channel assumption are set out under Chambourcin; they are identical here. The figures above are specific to Albariño.

Vidal Blanc

Hybrid white

Vidal Blanc will grow here, but the useful question is not whether to plant it; it is what it will demand. This site runs warmer than it ripens best in. It is a management cost, not a barrier, but it is the line that will decide how hard this variety is to run.

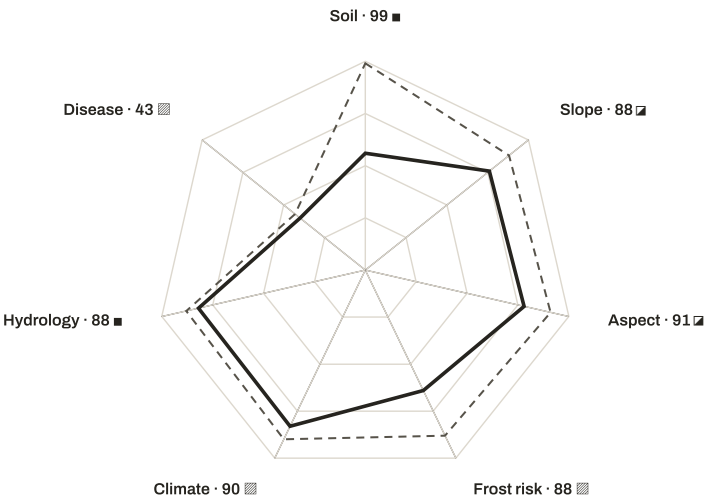
The consequence is concrete. That line belongs in the establishment and annual budget from the first season rather than surfacing in the third. Secondary items, training system and wine style, are developed in the considerations.

> ACROSS THE SET
>
> Where the land meets Chambourcin cleanly, it runs Vidal Blanc past its ideal on climate. The same site that suits the one is a stretch for the other, which is worth holding in view when weighing how much of the planting to give each.

BLOCKER RESULTS

BLOCKER	VARIETAL INPUT	SITE INPUT	RESULT
Winter cold	Moderately hardy, ~-10 to -15 °F ◧	Expected low 3 °F ▨	**Pass**
Season to ripen	Needs ≈ 2,500 GDD ◧	3,372 GDD ▨	**Pass**
Disease pressure	Susceptibility from crop library ◧	High pressure ▨	**Pass**
Heat ceiling	Ripens best near ≈ 2,800 GDD ◧	3,372 GDD, above optimum ▨	**Pass · runs warm**
Pierce's Disease	Vector-borne bacterial risk	Mid-Atlantic pressure: low ◪	**Pass**

Varietal inputs are crop-library estimates (◧); the GDD figure is a class-level heat reference, not a variety-specific measurement, so varieties of a type may share it.



What binds Vidal Blanc here is heat, which a more-is-better radar cannot show: at 3,372 GDD the season runs above its ~2,800 GDD optimum, the warm-style signal behind its tier. The attributes below read how the land fits; the heat ceiling sits off the figure.

FIG. 8.14 · SEVEN-AXIS SUITABILITY, SITE PROFILE AGAINST VARIETAL IDEAL. AXIS GRADES SHOWN AT LABELS.

COMPOSITE BASIS

The contribution profile below the radar is the property's, built from the same seven attribute scores and fixed weights for every variety, so it is identical here and shown in full under Chambourcin. What changes for Vidal Blanc is the varietal-ideal overlay on the radar: this is Vidal Blanc measured against its own needs.

CONSIDERATIONS · ASSESSMENT CONFIDENCE AND THE EVIDENCE BEHIND EACH

Vine vigor HIGH CONF. ■ FIRM	Fertile site + a high-vigor variety means heavy canopy work each year, and can dilute fruit unless managed.
Training system MODERATE CONF. ◧ ESTIMATE	Semi-trailing habit: leans toward a high-cordon / divided canopy rather than strict VSP; factor it into trellis design.
Wine style MODERATE CONF. ◧ ESTIMATE	Best fits a sweet or late-harvest program, not a dry varietal one. The varietal call here is about the program, not just the site.
Winter cold hardiness MODERATE CONF. ▨ MODELED	Your coldest years near 3°F clear this variety's -15°F survival limit; measured to where its wood begins to die (~-10°F), the working margin is 13°F, clearing winter with room to spare.
Season length to ripen MODERATE CONF. ▨ MODELED	Your ~3372 GDD runs over this variety's ~2800 optimum. Its moderate heat tolerance handles the warmth here, though the hottest vintages will lean toward riper styles than its cool-climate ideal.
Soil pH HIGH CONF. ■ FIRM	Your soil's pH 5.5–7.3 overlaps Vidal Blanc's preferred 6.0–7.0; amend the blocks that fall outside it to a soil test.
Drainage / wet feet HIGH CONF. ■ FIRM	Your well-drained ground meets what this variety needs.
Disease pressure (humid-climate) HIGH CONF. ▨ MODELED	Disease management runs regular: a standard spray program through the season keeps it in check.
Spring frost pocket MODERATE CONF. ◪ DERIVED	The property's cold-air analysis maps where frost pools; Vidal Blanc breaks bud late, which dodges most late frosts on that ground. Off the lowest ground it stays manageable.
Rootstock MODERATE CONF. ◧ ESTIMATE	Own-rooted is viable for this variety (cheaper establishment, no graft union) on phylloxera-free or pure-sand sites. Otherwise, graft to a phylloxera-resistant rootstock.
Acid retention HIGH CONF. ◧ ESTIMATE	Naturally high-acid: at a warm site like yours it holds wine structure well, especially if your nights cool down enough to lock acids in (we don't model nighttime cooling yet; verify locally).

ESTABLISHMENT COST	FIRST HARVEST	MATURE YIELD	MANAGEMENT
$10k–$16k / acre ◧	Year 3 ◧	4.0–7.0 t/ac ◧	High ◧

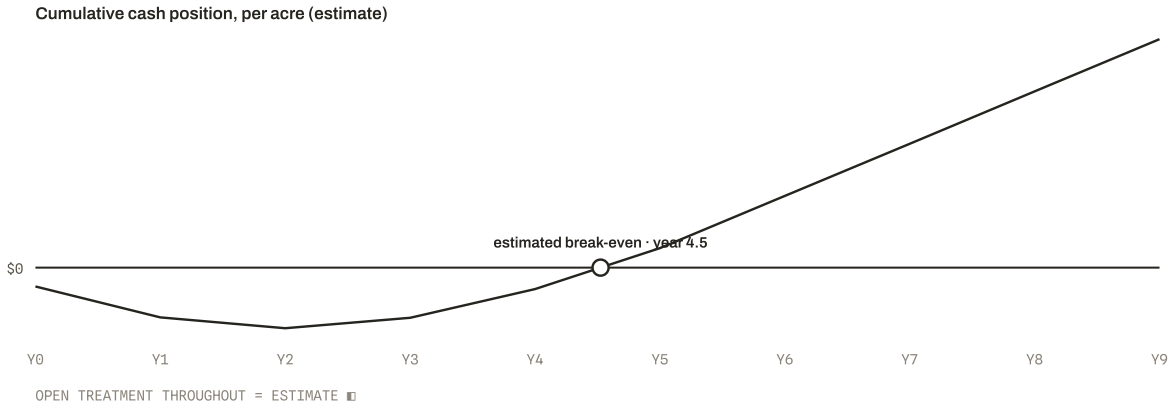


FIG. 8.15 · CASH POSITION FROM ESTABLISHMENT THROUGH MATURITY. THE ZERO-CROSSING IS A WINDOW, NOT A DATE.

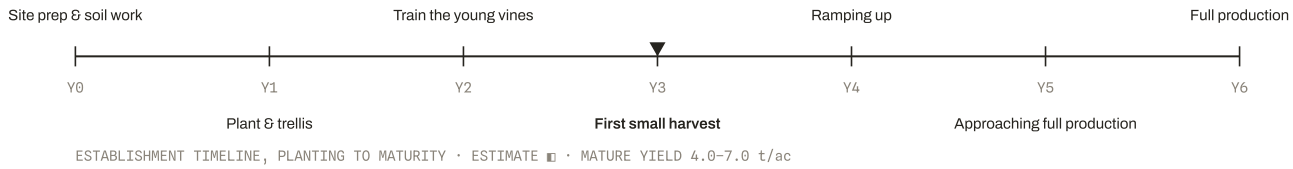


FIG. 8.16 · YEAR-BY-YEAR ESTABLISHMENT SEQUENCE.

METRIC	VALUE	GRADE	NOTE
Establishment cost	$10k to $16k / acre	◧	Through year 2, excluding land
Time to first harvest	3 years	◧	Light crop; meaningful volume follows
Expected yield at maturity	4.0 to 7.0 tons / acre	◧	Quality-oriented cropping levels
Revenue potential	$8k to $14k / acre	◧	Wholesale low, direct or estate high; channel sets it
Management complexity	High	◧	Driven by disease pressure

Read the band against the sales channel below it; on this variety the market assumption moves the outcome more than the site does.

METHODOLOGY & PROVENANCE How to read this cash flow, the cost basis, and the sales-channel assumption are set out under Chambourcin; they are identical here. The figures above are specific to Vidal Blanc.

Chardonnay

Vinifera white

Chardonnay sits at the edge of what this land offers, and it is worth being plain about why. This site runs warmer than it ripens best in. That is not a disqualification; it is a mismatch to plant around deliberately or not at all.

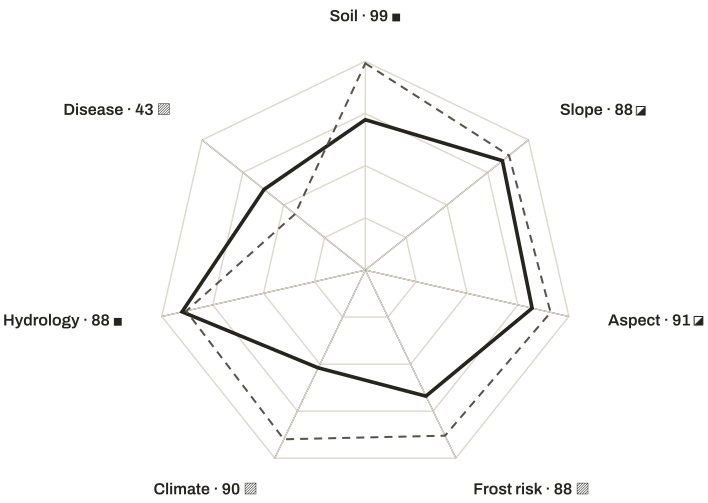
The tradeoff is a program decision more than an agronomic one. The warmth that pushes this variety past its ideal is the same warmth that suits a riper, off-dry or late-harvest style; if the wine or fruit program wants that, the site is an asset, and if it wants a taut, cool-climate expression, this is the wrong ground for it. The considerations below carry the specifics (season length to ripen, disease pressure (humid-climate)).

> ACROSS THE SET
>
> Where the land meets Chambourcin cleanly, it runs Chardonnay past its ideal on climate. The same site that suits the one is a stretch for the other, which is worth holding in view when weighing how much of the planting to give each.

BLOCKER RESULTS

BLOCKER	VARIETAL INPUT	SITE INPUT	RESULT
Winter cold	Tender, ~0 to -8 °F ▨	Expected low 3 °F ▨	**Pass**
Season to ripen	Needs ≈ 1,900 GDD ◧	3,372 GDD ▨	**Pass**
Disease pressure	Susceptibility from crop library ◧	High pressure ▨	**Pass · caution**
Heat ceiling	Ripens best near ≈ 2,250 GDD ◧	3,372 GDD, above optimum ▨	**Pass · runs warm**
Pierce's Disease	Vector-borne bacterial risk	Mid-Atlantic pressure: low ◪	**Pass**

Varietal inputs are crop-library estimates (◧); the GDD figure is a class-level heat reference, not a variety-specific measurement, so varieties of a type may share it.



What binds Chardonnay here is heat, which a more-is-better radar cannot show: at 3,372 GDD the season runs above its ~2,250 GDD optimum, the warm-style signal behind its tier. The attributes below read how the land fits; the heat ceiling sits off the figure.

FIG. 8.17 · SEVEN-AXIS SUITABILITY, SITE PROFILE AGAINST VARIETAL IDEAL. AXIS GRADES SHOWN AT LABELS.

COMPOSITE BASIS

The contribution profile below the radar is the property's, built from the same seven attribute scores and fixed weights for every variety, so it is identical here and shown in full under Chambourcin. What changes for Chardonnay is the varietal-ideal overlay on the radar: this is Chardonnay measured against its own needs.

CONSIDERATIONS · ASSESSMENT CONFIDENCE AND THE EVIDENCE BEHIND EACH

Spring frost pocket MODERATE CONF. ◪ DERIVED	This block is a low frost pocket and the variety breaks bud early, so spring frost can hit the young shoots.
Frost recovery MODERATE CONF. ◧ ESTIMATE	Early budbreak on your frost-prone block, and this variety recovers poorly from frost (low secondary-bud fruitfulness): a late frost here is a lost year, not a dented one.
Season length to ripen MODERATE CONF. ▨ MODELED	Your ~3372 GDD sits well over this variety's ~2250 optimum. As a cool-climate grape it ripens easily but runs to high sugar and low acid in warm years: a riper, lower-acid style.
Disease pressure (humid-climate) HIGH CONF. ▨ MODELED	Disease management runs intensive: a proactive, sustained spray program through the season. Like most vinifera, it has little built-in resistance to downy mildew, powdery mildew, and black rot.
Vine vigor HIGH CONF. ■ FIRM	Fertile site + a high-vigor variety means heavy canopy work each year, and can dilute fruit unless managed.
Night cooling HIGH CONF. ◧ ESTIMATE	This variety leans on cool nights to hold its acid and freshness in a warm climate. Whether it works here depends on your site's diurnal swing: verify locally; we don't model nighttime cooling yet.
Rootstock MODERATE CONF. ◧ ESTIMATE	Must be grafted: factor rootstock selection and graft cost into establishment (we presume phylloxera present until proven otherwise).
Winter cold hardiness MODERATE CONF. ▨ MODELED	Your coldest years near 3°F clear this variety's -8°F survival limit; measured to where its wood begins to die (~0°F), the working margin is 3°F, a thin margin.
Soil pH HIGH CONF. ■ FIRM	Your soil's pH 5.5–7.3 overlaps Chardonnay's preferred 6.0–6.8; amend the blocks that fall outside it to a soil test.
Drainage / wet feet HIGH CONF. ■ FIRM	Your well-drained ground meets what this variety needs.

ESTABLISHMENT COST	FIRST HARVEST	MATURE YIELD	MANAGEMENT
$15k–$22k / acre ◧	Year 3 ◧	3.0–5.0 t/ac ◧	High ◧

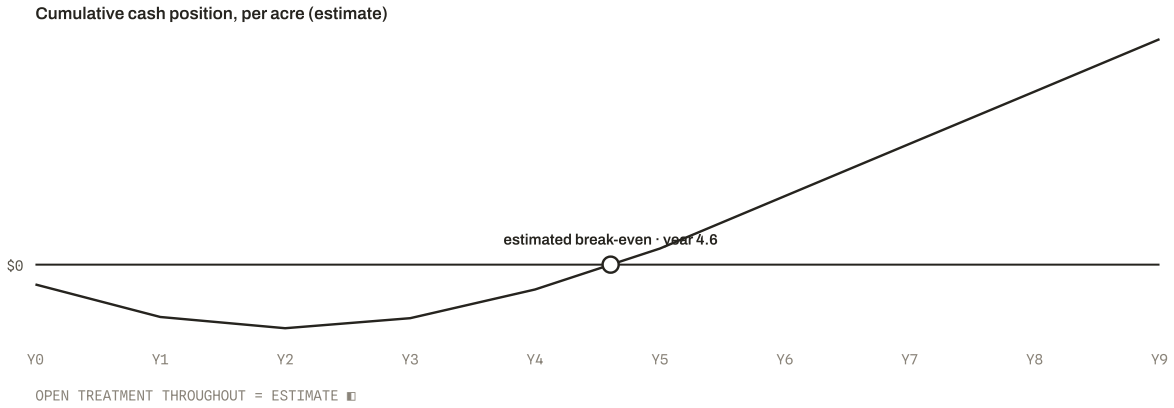


FIG. 8.18 · CASH POSITION FROM ESTABLISHMENT THROUGH MATURITY. THE ZERO-CROSSING IS A WINDOW, NOT A DATE.

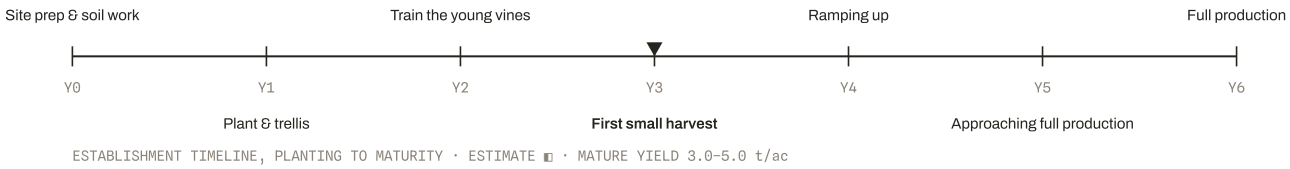


FIG. 8.19 · YEAR-BY-YEAR ESTABLISHMENT SEQUENCE.

METRIC	VALUE	GRADE	NOTE
Establishment cost	$15k to $22k / acre	◧	Through year 2, excluding land
Time to first harvest	3 years	◧	Light crop; meaningful volume follows
Expected yield at maturity	3.0 to 5.0 tons / acre	◧	Quality-oriented cropping levels
Revenue potential	$10k to $20k / acre	◧	Wholesale low, direct or estate high; channel sets it
Management complexity	High	◧	Driven by disease pressure

Yield potential is real, but the site's warmth may push the fruit toward styles that do not command top dry-wine pricing; the sound move is to size the venture against the price its likely style earns, not against the top of the range.

METHODOLOGY & PROVENANCE How to read this cash flow, the cost basis, and the sales-channel assumption are set out under Chambourcin; they are identical here. The figures above are specific to Chardonnay.

What the candidates say together

Read as a set rather than one at a time, the six wine grape candidates say something about this property that no single variety analysis does. This page steps back from the individuals to what the decision space as a whole reveals.

THE DISCRIMINATOR

The candidates separate on disease pressure and heat accumulation, not on the land's structure: disease pressure pulls Cabernet Franc and Albariño; heat accumulation pulls Chardonnay and Vidal Blanc. Winter cold, soil demand, slope, sun exposure, and drainage separate none of them.

Two roads through humidity	Three of the six the land can grow carry real built-in resistance to the fungal diseases a humid season drives hardest and meet the climate on a lighter program (Chambourcin, Vidal Blanc, Norton); the other three (Cabernet Franc, Chardonnay, Albariño) lean on a full, well-timed spray program instead. That is the same land asking two different things of two kinds of variety.
Vigor to manage	Four of the six (Chardonnay, Chambourcin, Vidal Blanc, Norton) run high vigor on these deep, water-holding soils and want a divided or high-cordon canopy to keep growth in fruit rather than shade.
Where heat points the style	Two of the six (Chardonnay and Vidal Blanc) sit past their heat ideal here, which points the fruit toward a riper or off-dry style rather than a taut, cool-climate one. The site is an asset or a liability depending on the wine you want.
WHAT THEY SHARE	All six clear winter hardiness, though Cabernet Franc, Chardonnay, Albariño, Chambourcin run closer to the margin. All six sit on the same soil demand, slope, sun exposure, and drainage: the land's structure is not what separates them, which is why the choice comes down to the few attributes above.

None of this is a recommendation; it is a synthesis. The choice among these wine grapes is yours, and it turns on the market and the program you intend, not on a gap in the land, which meets all six of them.

09 Next Steps

ACTIONABLE · KEYED TO THIS REPORT

The report ends where the work begins. These are what the data points to next, ordered from what is worth settling before you commit to what lines up before the first planting.

Before you commit

The modeled inputs the decision leans on hardest.

- [ ] A lab soil test on each intended block (pH, organic matter, cation exchange) is what the pH-amendment and nutrition program should be sized to, rather than the survey average.
- [ ] A professional wetland delineation (roughly $1,500-4,000) is the governing instrument before any earthwork near a low, wet edge, far cheaper before the fact than after.
- [ ] An on-site min/max logger across a full winter and spring is what confirms the modeled cold margin and frost timing.
- [ ] The traced drainage lines and the low corners, after a heavy rain, are where the water and cold-air maps ground-truth.

Before block layout

- [ ] Variety-to-block placement follows the Sun Exposure and Cold Air maps: the brightest, best-draining ground carries the widest margin for the latest ripeners, and the corners where cold air pools carry the least for tender, early-blooming stock.
- [ ] For whichever varieties carry forward, nursery availability and rootstock options run a full season ahead on order lead times, which makes them early-confirm items.
- [ ] Perimeter deer fencing or grow tubes is a Year-0 budget line, and the fence run measures off the property boundary.

Financing & establishment

- [ ] The venture sizes against capital that can stay in the ground for a decade: the cash position runs negative through establishment on every modeled path.
- [ ] The sales channel, wholesale, direct, or estate, moves the outcome more than any agronomic choice, which makes it the assumption to settle before relying on the revenue band.
- [ ] The establishment costs sequence to the Year 0-3 schedule, and a site-specific pro forma is the input a financing decision turns on.

> CARRYING THE PLAN FORWARD
>
> When the ground work is done and the plants go in, Folia Ops carries this same plan into the season: execution guidance anchored to your blocks and varieties rather than a blank calendar. It is priced by the complexity of the operation, not its acreage, and it is coming soon.

10 What This Report Does Not Tell You

HONEST GAPS, STATED RATHER THAN IMPLIED

An assessment built from public data has edges. They are listed here so the reader knows where this document ends and other instruments, a soil pit, a county office, a season on the ground, begin. None of these gaps is filled by inference elsewhere in the report.

NOT PULLED, OUTSIDE THE CURRENT DATA SURFACE

Land cover and existing vegetation	What currently grows on the property, woodland, pasture, prior plantings, is not read from any dataset, so clearing cost is not captured anywhere in this report.
A second climate source	Climate values come from a single modeled surface (PRISM). No cross-validation against an independent model is performed.
Zoning, easements, encumbrances	Legal constraints on use are not queried; the county is where to confirm them before committing capital, a check-it-yourself item.
Satellite imagery as data	Aerial imagery in the application is display, not analysis. Nothing in this report is derived from it.

NOT KNOWABLE FROM SITE DATA, BY DESIGN

Every value in the site sections is a site condition. The variety half of every finding, cold-kill response in a specific event, ripening outcome in a given fall, cluster rot in a given season, genetic disease susceptibility, comes from the varietal literature and, ultimately, from time on the ground. No property dataset can supply it.

Coverage is also uneven: for warm-zone crops such as fig, olive, pomegranate, and persimmon, sparse modeling can produce false negatives. A “does not pass” for those crops is weaker evidence than the same result for a well-modeled crop.

RESOLUTION LIMITS, TRUE AT THE SOURCE, COARSE AT THE PROPERTY

Soil survey	Mapped at 1:24,000: within-property variation is not resolved. A soil pit series is the definitive instrument.
Climate cell	About 800 m grid: property-scale frost behavior is inferred from terrain, not measured.
Hardiness zone	Keyed by postal area (ZCTA), coarser than the property.
Wetland screen	A point query against an inventory, not a field delineation.

Where a value could not be determined, this report says so and grades it □. A stated gap is information; a hidden one is a liability.

11 Sources & Method

PUBLIC DATASETS BEHIND EACH LAYER

The assessment is one query fanned out to the government services below, run in parallel. Each service degrades independently: a failed source is reported as unknown for that layer and never substituted. Capture dates are stated wherever a cached read served the value.

LAYER	DATASET	STEWARD	CAPTURED	GRADE
Terrain & contours	3DEP elevation, 1/3 arc-second	USGS	2026-07-23	◪
Soil & open water	SSURGO via Soil Data Access	USDA NRCS	2026-07-23	■
Climate	PRISM normals via ACIS GridData	Oregon State / RCC-ACIS	2026-07-23	▨
Hardiness	Plant Hardiness Zone Map 2023, by ZCTA	USDA / phzmapi.org	2026-07-23	▨
Flood	National Flood Hazard Layer	FEMA	2026-07-23	■
Wetland	State wetland inventory (state-routed)	Maryland DNR	2026-07-23	■
Wildfire	Wildfire Hazard Potential	USFS	2026-07-23	■
Place resolution	TIGER boundaries; AVA boundary set	US Census; TTB	2026-07-23	■
Varietal traits	Crop Intelligence Library	Folia, advisor-validated	n/a	◧

METHOD

The property boundary alone determines the assessment: the boundary is geocoded, then queried against each service in parallel. Terrain values are derived from the measured elevation grid; a grid with more than 10% missing cells degrades to a modeled fallback and is graded accordingly rather than shipping interpolated cells as measurement.

Confidence grades attach at the source and propagate: a finding built from several inputs carries the grade of its least-firm input. Unknown is a first-class result: a missing fact is left missing, graded □, and never invented.

The capture date is when each external layer was read; the generated date is when this document was composed from those reads. The gap between them is immaterial to the findings: the layers this report leans on, climate and hardiness normals, the soil survey, the elevation grid, move on the scale of years, not weeks, so a refresh will usually sharpen a value rather than change a finding.

HOW THE COMPOSITE IS WEIGHTED

The composite on the cover and the Glance is a weighted mean of seven attribute scores. Nothing about it is hidden; the weights are these, and they are the same for every property Folia assesses.

ATTRIBUTE	WEIGHT	WHY IT CARRIES THAT WEIGHT
Soil	0.20	Sets the ceiling on vigor and root health, and it is the hardest attribute to change once vines are in the ground.
Slope	0.16	Drives cold-air drainage, sun angle, and the cost of working the ground.
Frost risk	0.16	A spring freeze at bloom can cost an entire season's crop.
Aspect	0.14	Sun exposure and canopy drying, in proportion to how steep the ground is.
Climate	0.14	Whether the season carries enough heat to ripen, without so much that the fruit loses balance.
Disease pressure	0.12	A real, recurring management cost in humid regions, but a cost to plan around, not a wall.
Hydrology	0.08	Surface water and mapped channels; usually a placement detail rather than a site-wide limit.

The weights are fixed, so two properties are always measured on the same ruler. They sum to 1.00. Each attribute's score times its weight is the contribution drawn in the composite figure, and those contributions sum to the composite: a reader with the attribute scores above and these weights reaches the printed number.

HOW EACH ATTRIBUTE IS SCORED

Each attribute is scored 0 to 100 by crossing this property's conditions against a fixed curve that does not change from property to property. Four attributes are single-input curves you can reproduce from the figure in that attribute's section; three combine several soil or terrain readings and are described by their inputs and direction.

ATTRIBUTE	INPUT	CURVE (INPUT → 0-100 SCORE)
Slope	Mean grade (%)	A plateau, not a penalty for steepness. Below 3% loses points for sluggish cold-air and water shedding; 6 to 15% is ideal (about 92 at 9%, still ~85 at 15%); it eases off through 15 to 20%, declines across the awkward 20 to 30% band, and drops sharply past 30% where terracing is a real cost. A 12.4% grade scores about 88.
Aspect	Downhill bearing + grade	Full marks due south, falling toward north, but only in proportion to steepness: near-flat ground reads nearly full sun whichever way it tips, and only a steep north face gives up real sun (up to about 48 points).
Climate	Growing degree days (Apr-Oct, base 50 °F, capped at 86 °F)	An inverted U. The quality plateau (score 90) runs about 2,900 to 3,400 GDD; below it the score falls roughly 1 point per 14 GDD toward a hard ripening limit; above it the score decays toward a floor of 50, so a hot site reads 'plant heat-lovers,' not 'failing.'
Disease pressure	Growing-season rainfall (in)	84 minus about 1.8 points per inch of April-October rain above 7 inches, floored at 18 and capped at 90. A dry season reads high (easy), a wet season low (spray-driven). This is the site's pressure, identical for every variety; a variety's own tolerance is read separately in its considerations.
Soil	SSURGO drainage, water-holding capacity, texture, farmland class	Well-drained ground with adequate but not excessive water-holding scores high; poor drainage or a non-soil map unit (rock land, made land) is capped low, because standing water is the fastest way to lose a perennial planting.
Frost risk	Terrain cold-air model + frost-free window + winter low	A pour-point read of where cold air pools on the property, lifted toward safe when the climate itself is frost-free (a long frost-free window and a mild winter, both required).
Hydrology	Wetland share, flood zone, mapped channels	Starts high and comes off for mapped wetland share, a partial flood-zone intersection, and proximity to traced drainage channels.

Scores are held at integer resolution for ranking. A soil score of 99 is not more precise than its 1:24,000 survey input; it is a rank position on a fixed curve, not a measurement, and it should be read as a comparison within the same ruler, not as a physical quantity.

This report presents evidence and interpretation drawn from public data. It does not prescribe actions and is not a substitute for on-site investigation, legal review, or professional agronomic advice.

Field Worksheets

APPENDIX · TAKE THESE INTO THE FIELD

The report you have just read is the modeled one: it reads your ground from the best public and remote data available, and grades every value by how firmly it is known. This appendix turns that into a working document. Each worksheet carries the readings the report makes remotely and that your own soil, season, and terrain can confirm, pre-printed with what the model says beside room for what you find.

They are ordered by how much a field measurement moves the picture, softest read first. They go into the field alongside the model's figures, and where a measured value diverges materially from the model, the section of the report that leans on it is worth regenerating against your figure.

IN THIS APPENDIX

Ordered by how much a field reading moves the plan: the softest, most-modeled reads come first. The confidence marks beside each worksheet are the grades those readings carry in the report today (▨ modeled and ◧ estimate reward field confirmation most; ■ sourced values are already firm).

Season & weather log

This sheet replaces modeled normals with a measured season. One year of on-site heat accumulation, winter low, and frost timing shows where the roughly 800 m climate grid and your own ground diverge.

WHAT THE REPORT MODELS

Growing degree days
3,372, PRISM surface ▨

CONFIRM BY On-site weather station, one full season

Winter minimum
3 °F, zone surface ▨

CONFIRM BY On-site min/max logger, one winter

YOUR READINGS

DATE / EVENT	GDD TO DATE	MIN TEMP °F	LOCATION	NOTES

Terrain walk

This sheet ground-truths slope and aspect where each block will actually sit. The modeled means smooth over the pitches and low corners that decide row direction, drainage, and which ground chills first.

WHAT THE REPORT MODELS

Slope & aspect by block
mean 12.4%, SW ◪

CONFIRM BY Block walk; GPS or level survey

Cold-air & frost pockets
3 pockets modeled ◪

CONFIRM BY Temperature loggers on still spring nights

YOUR READINGS

BLOCK / AREA	SLOPE MEASURED	ASPECT	DRAINAGE LINES / LOW SPOTS	NOTES

Soil sampling

This sheet confirms the chemistry and drainage the report reads remotely. Soil is the one layer a lab settles cheaply and for good, block by block, and it drives pH amendment, nutrition, and where drainage will and will not cooperate.

WHAT THE REPORT MODELS

Soil pH & amendment need 5.5–7.3, survey range ■	CONFIRM BY Lab soil test, 3-5 cores per block
Soil texture & water-holding Channery loam, AWC 0.19 ■	CONFIRM BY 2-3 soil pits; texture by feel plus lab
Seasonal wetness & drainage Well drained ■	CONFIRM BY Perc or dig test after heavy rain

YOUR READINGS

BLOCK / AREA	DATE	PH (LAB)	TEXTURE	DRAINAGE / PERC	NOTES

Wetland & water edges

This sheet records what the wet edges do across a season. A professional delineation is the legal answer before any earthwork; these observations show where it is worth looking and where the wet ground sits.

WHAT THE REPORT MODELS

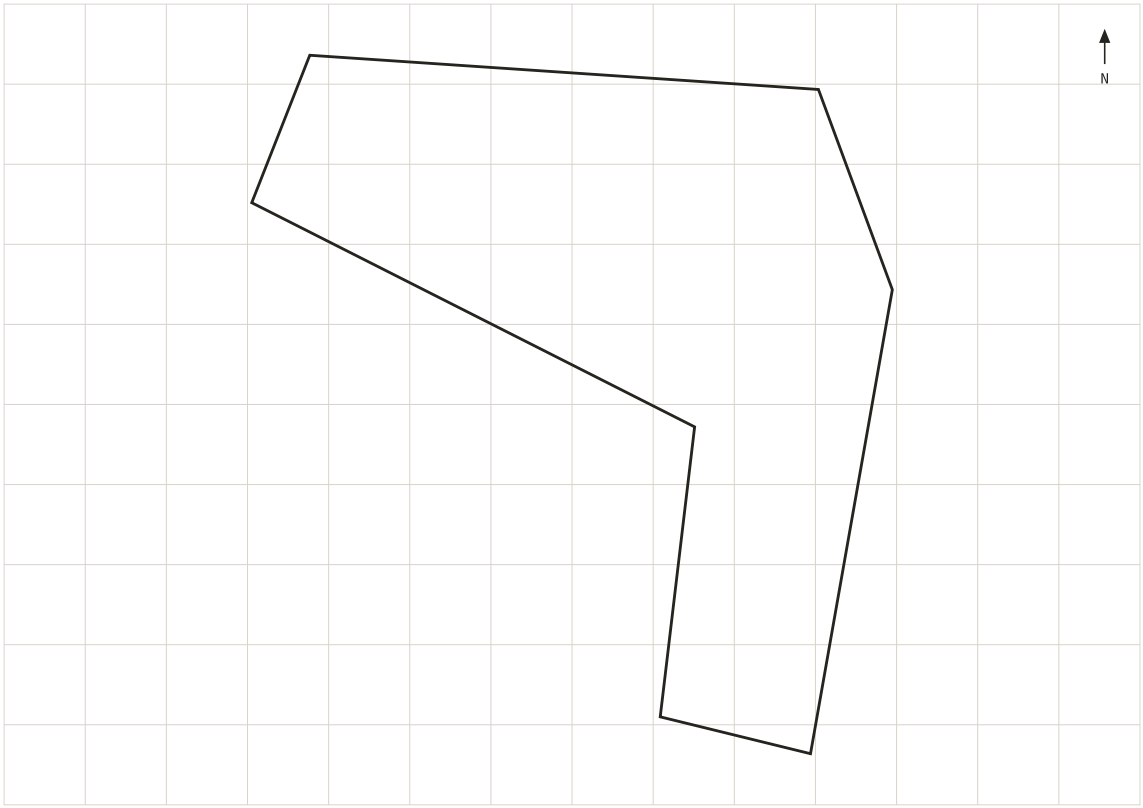
Wetland boundary
2% of area mapped ■

CONFIRM BY Professional delineation ($1,500-4,000) before any earthwork near wet edges

YOUR READINGS

LOCATION / EDGE	DATE	OBSERVATION (STANDING WATER, SEEPS)	FOLLOW-UP

Marked-up property map



Property boundary at survey scale · grid for reference only

This sheet carries the property outline into the field for marking up what you find: block boundaries, drainage lines and wet spots, tree lines and windbreaks, and where each reading on the sheets above was taken.

MARK ON THE MAP

- ☐ Block boundaries and row direction
- ☐ Drainage lines, seeps, and wet spots
- ☐ Tree lines, hedgerows, and windbreaks
- ☐ Low corners where cold air settles
- ☐ Where each reading on the sheets above was taken