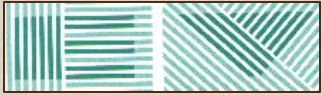


ECONOMICS OF ORGANIC VITICULTURE

*ORGANIC VINEYARD MANAGEMENT IN VARYING CONTEXTS AND
CONDITIONS*

JESSE APGAR

**DIRECTOR OF OPERATIONS,
ENTERPRISE VINEYARDS**



BIO

- Enterprise Vineyards has been farming organically for over 40 years, certified with CCOF since 1991
 - We are constantly working to reduce the environmental impact of our practices
- We specialize in hillside farming and vineyard development in rocky soils
- We are a full service company, often managing the entire property
 - Fire Prevention/Clean Up, Ranch Maintenance, Pond Work, Road Work, Fence/Gate Work, Barn construction, orchard and hedgerow planting and management, Olive Trees



EMPLOYEE RELATIONS AND RETENTION

- 125-200 full time hourly employees, starting \$20/hr
 - Increased pay during harvest
- 26 full time salaried employees
 - 4-5 weeks of paid vacation
 - 3% match simple IRA
 - Health, dental, optical, life insurance
- Accidental Death and Dismemberment Insurance
- Multiple generations of families
- Harvest Bonus
- Increased pay for tractor drivers (\$25-\$35)
heavy equipment operators



HIDDEN COSTS OF RUNNING LABOR

- Overtime (x1.5)
 - Labor laws and weather conditions make it difficult to get 2000 hrs/year/employee without overtime
- Workman's Comp
- Employee Offered Insurance
 - Health insurance = EV pays \$500,000 annually
- Vehicle Insurance
- Gas
- Employee Tech
 - Cell Phones, iPads, Computers
- PPE
- Safety Trainings
- Mechanic Shop
- Time Off
- Sick Days
- Bonuses
- Emergency Family Leaves
- To keep the business running, some of these costs get passed to our clients as an 55% overhead on labor and 10-15% overhead on materials
 - All of the following costs include this overhead.

PASSES : HAND VS MECHANICAL

- Mechanical
 - Pass 1: Mowing Every Other Row
 - Pass 2: Crimping Every Other Row
 - Pass 3: Cultivating Mowed Rows (EOR)
 - Pass 4: Under vine weed control
 - Pass 4 – 10 spray program
 - Pass 11: Hedger
 - Pass 12: Harvest
 - Pass 13: Cover crop and fertilization
 - Hand work : VSP Vineyard
 - Pass 1: Pruning
 - Pass 2: Tying
 - Pass 3: Suckering
 - Pass 4: Shoot Positioning
 - Pass 4: Shoot Thinning
 - Pass 5: Tipping or Hand Hedging
 - Pass 6: Cluster Thinning
 - Pass 7: Green Drop
 - Pass 12: Harvest
-

ORGANIC PRACTICES – COVER CROPPING



- \$300-\$500/acre
- Heavy rate of seeding
- Multiple species = increase biodiversity above and below ground
 - Different mixes under vine and in alternating rows
- Keeps soil in place during winter season
- Primary form of fertilization
- Builds soil organic matter
- Feeds soil biology
- Promotes soil aggregation and improves soil structure







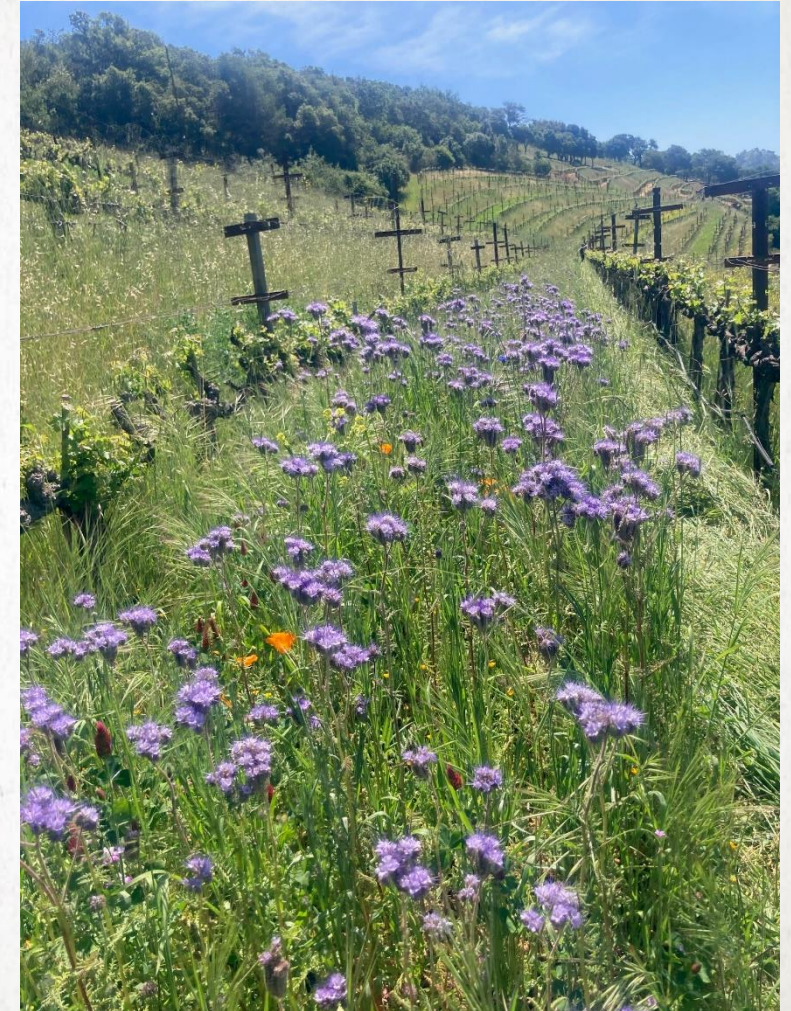
VALLEY – HEAVY CLAY



MOUNTAIN - STEEP



MOUNTAIN - TERRACE



VALLEY SOILS



MOUNTAIN SOILS



CRIMPED



ORGANIC PRACTICES – MOWING AND CRIMPING

Mowing, \$200-\$250/ ac, 1-3 passes/season



Crimping, \$150/ac, 1-3 passes per season
Less Repairs and Mechanical Upkeep.



Costs are doubled if tractors and implements are rented from EV

CRIMPING

Crimping regrowth on steep wet soils = erosion control and vigor control



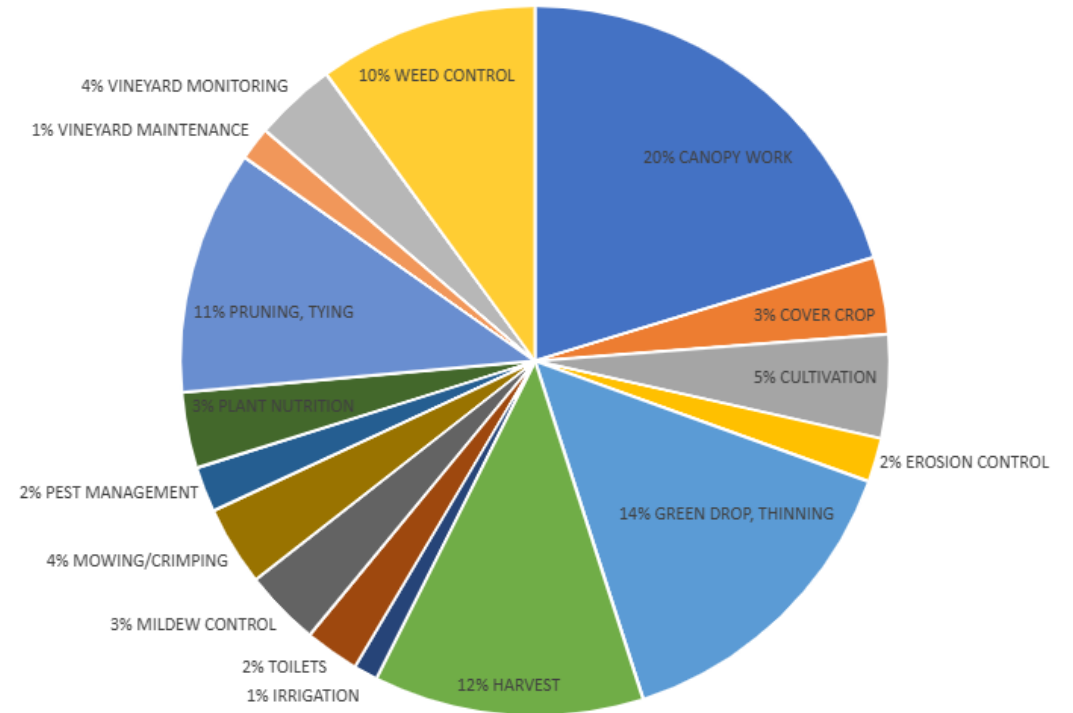
New Trials (video): Crimping Every Other Row on Very Rocky Soils



ORGANIC PRACTICES WEED CONTROL

- \$1000-\$2500/ac depending on season, soil type, terrain, and methods used
- EV spends \$1,000,000 per year on weed control
- Other Large Expenses:
 - Pruning, Canopy Work, Fruit Thinning, Harvest

Vineyard Management Costs, Valley Floor Contracted Fruit
% of total costs by farming category



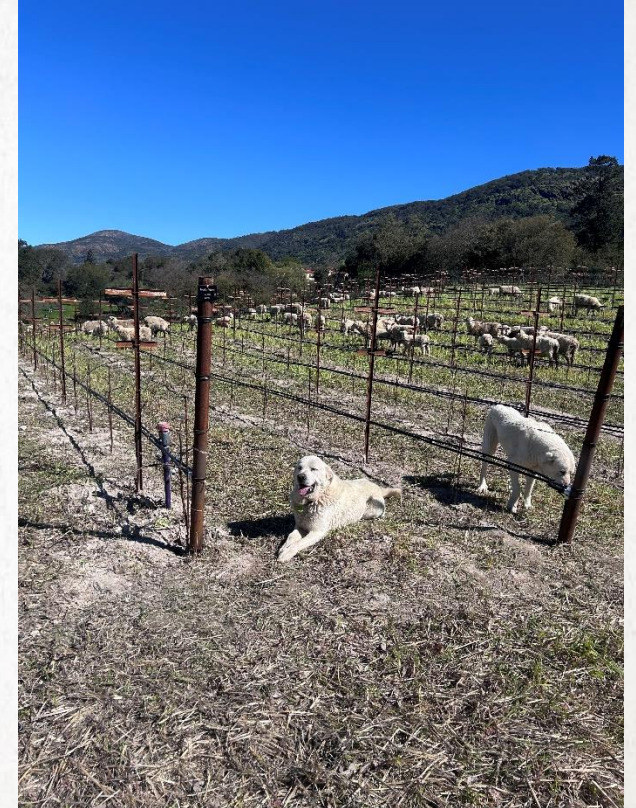
ORGANIC PRACTICES - WEED CONTROL

- Shoveling, \$2000/ac, 1 pass every 3-5 years



- Weed Control methods vary by season due to weather, soil moisture, equipment availability
 - Have multiple tools available

Contracted Grazing, \$300-\$400/ac



Rocky Soils = twister (video)



- Twister: \$400/ac
 - \$127/ac labor
 - \$270/ac equipment (tractor + twister)

Weed Eating:

\$250-\$300/ac ranch owned weed eaters

\$750-\$1000/ac, with rented weed eaters

Steeper and more rocky soils = more time

Sunflower



ORGANIC PRACTICES - UNDER VINE CULTIVATION

3 disk



Gramegna (video)



Weed knife



ORGANIC PRACTICES – IN ROW CULTIVATION

\$250-\$500/ac depending on # passes and if tractor rented

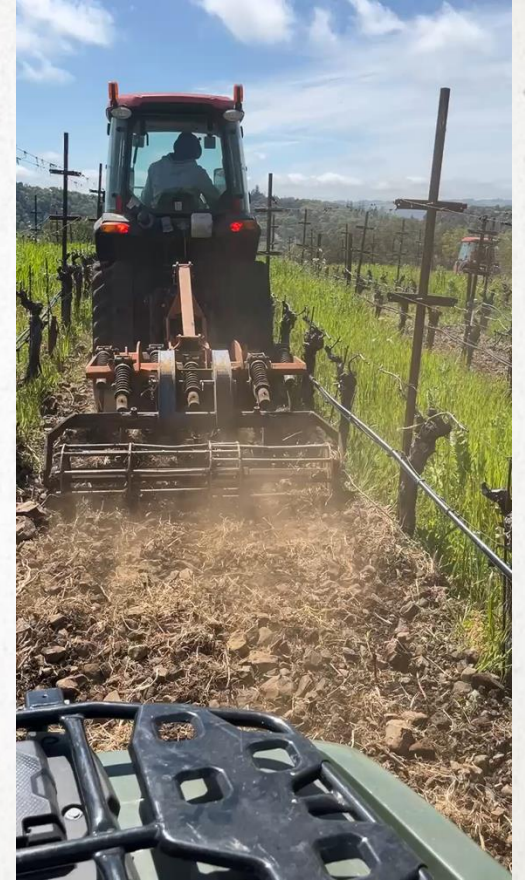
Pull Disk



3 Point Hitch Disk



Heavy Duty Spring
Tooth Harrow



HILLSIDE FARMING

- Fruit Quality
 - Lower yields
 - Sense of place
 - Productive use of marginal soils
 - Increased Sunlight hours from being above the fog
 - Increased minerality from high concentrations of rocky soils
 - Sense of place
- Economics – time is money
 - tractors driving slower on uneven ground
 - Employees moving slower on slopes (Safety, physical exertion)
 - Moving of infrastructure (Ex: plumbing) because of elevation/slope changes adapting to curves of hillside
 - Increased distance between fields that are non contiguous
- Terrace management and associated weed control
- Higher mildew pressure
- Higher spider mite populations
 - Warm nights = populations explode quickly
 - Increased road dust, increased sulfur use
 - Predator/parasitoid habitat in recovery due to fires



RISKS OF MOUNTAIN WORK

- Dangerous driving
 - One lane windy roads, hauling, employee movement, residents/pedestrians, dense fog
- Fire danger
 - High fire risk areas and hazards associated with burned trees
- Emergency Evacuation Plans
- Lack of cell phone and internet service (walky talkies, Starlink)
- Equipment maneuverings on steep slopes
- Employees working on steep slopes
- Snakes



Comparisons of Farming Expenses (2023, per acre)	VALLEY FLOOR CONTRACTED, MOSTLY HEADTRAINED AND OLD VINES	VALLEY FLOOR CONTRACTED.	HILLSIDE CONTRACTED	HILLSIDE ESTATE
	rent equipment	rent equipment	own equipment	own equipment
<i>Acres:</i>	<i>21.5</i>	<i>41.7</i>	<i>71.9</i>	<i>49.5</i>
FARMING	\$9,856	\$15,503	\$16,947	\$19,265
PRUNING AND TYING	\$851	\$1,702	\$2,103	\$2,929
CULTIVATION	\$683	\$719	\$271	\$94
MOWING/CRIMPING	\$266	\$555	\$221	\$299
WEED CONTROL	\$1,228	\$1,530	\$1,124	\$1,000
CANOPY MANAGEMENT	\$1,724	\$3,098	\$3,923	\$5,223
PEST AND DISEASE CONTROL	\$410	\$844	\$742	\$910
IRRIGATION	539*	\$167	\$239	\$433
PLANT NUTRITION	\$269	\$528	\$471	\$1,088
GREEN DROP, CLUSTER THINNING	\$416	\$2,223	\$3,223	\$1,471
HARVEST	\$2,064	\$1,883	\$1,560	\$1,884
EROSION CONTROL		\$306	\$1,286	\$1,112
COVER CROP	\$308	\$537	\$412	\$320
VINEYARD MONITORING	\$361	\$572	\$405	\$328
VINEYARD MAINTENANCE	\$129	\$231	\$430	\$794
ON SITE SUPERVISION	\$252		\$17	\$562
LABOR (TOILETS)	\$98	\$380	\$147	\$120
ADMIN	\$12	\$50	\$42	\$5
EQUIPMENT OPERATION	\$175	\$65	\$240	\$575
FROST PROTECTION/COOLING		\$48	\$42	\$49
MATERIALS	\$71	\$66	\$49	\$69
*MANUAL IRRIGATION SYSTEM, NEED WORK				



ORGANIC CERTIFICATION COSTS

- CCOF
 - ~\$950-\$1000/yearly certification and inspection costs per operation
 - + a few hours of hourly EV labor
- Regenerative Organic (ROA/ROC)
 - \$2250-\$2450 first year of certification, per operation
 - \$1550-\$1750 maintain certification, per operation
 - + a few hours of hourly EV labor
- Small acreage operations = more impact of certification costs
 - Each of our operations needs to be certified individually (needs same property ownership)

ROC Certification Fees - Per Operation (must match with CCOF certification)			
<u>Year 1 - Application + Certification</u>			
Fee Type	Cost	Organization	Payment Schedule
Application Fee	350	ROA	One time, per application per ranch
Annual Fee	250	ROA	annual
Certification Fee	500	CCOF ROC	Annual - Soil Health
Certification Fee	500	CCOF ROC	Annual - Social Fairness
Inspection Fee	300-500	CCOF ROC	Annual - Inspection
Application Review Fee	350	CCOF ROC	One time, per application per ranch
Total Year 1	2250 - 2450	Not including Enterprise Vineyard labor costs	
<u>Year 2 - Maintain Certification</u>			
Fee Type	Cost	Organization	Payment Schedule
Annual Fee	250	ROA	annual
Certification Fee	500	CCOF ROC	Annual - Soil Health
Certification Fee	500	CCOF ROC	Annual - Social Fairness
Inspection Fee	300-500	CCOF ROC	Annual - Inspection
Total Year 2+	1550-1750	Not including Enterprise Vineyard labor costs	



VINEYARD DEVELOPMENT

Organic materials used in development phase:
Cover Crop Seed, Compost, fertilization





Thank you!

