

Advanced Beginner Grape School
Columbia, Missouri
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Grape and Wine Institute
University of Missouri

Vineyard Business Plan Before Raising Canes (w)Rite a Budget

Dean S. Volenberg

Viticulture and Winery Operations Extension Specialist

University of Missouri

Grape and Wine Institute

What you need to know before starting

- Acquire knowledge
 - Grape and Wine Industry – local, regional, national, international
 - Business management
 - Vineyard management
 - Marketing – I can't stress this enough!

Viticulture Math

- 10' x 8' spacing = 545 vines/A
- 165 gallons juice/ton grapes
- 150 gallons finished volume/ton
- If 3.5 tons/acre
 - 525 gallons finished/545 vines
 - 0.96 gallons/vine
 - 3.65 L/vine
 - 4.86 bottles (750 ml)/vine
 - 2,649 bottles/acre
 - 220 cases/acre
 - \$26,400/acre (\$10/bottle)
- 3.5 tons/A = 7,000 lbs/A
- 12.84 lbs/vine
- 0.25 lb/cluster
- 51.4 clusters vine
- Each primary count node produces shoot with 2 clusters
- 26 count nodes
 - 13 shoots/4 ft cordon
 - 3.7 in between spurs
- If you left 13 two bud spurs/4 ft cordon
 - 26 shoots = 52 clusters
 - Shoot or cluster thin?

Vineyard Math

1 acre = 43,560 sq ft ~ 209' square ~ football field

10' rows x 8' vines = 545 vines/acre = 4,356 linear ft/ac

3.5 ton/ac ÷ 545 vines = 12.8 lbs/vine

12.8 lbs/vine ÷ 0.25 lbs/cluster = 51 clusters per vine

3.5 ton/ac ÷ 19 lbs/5 gal bucket = 368 buckets/ac

40 lbs/lug = 175 lugs/ac

3.5 ton/ac x \$1,200/ton = \$4,200 gross per acre

\$4,200 ÷ 545 vines = \$7.70/gross per vine

175 hrs of labor/ac/yr ÷ 545 vines/ac = 20 min/vine/yr

Big Picture Economics

- \$15K to \$30K to bring an acre of grapes into production
 - 3 years but remember pre-plant site preparation
 - 8 K is renting, borrowing, or using existing equipment
 - 15 K is buying new equipment and depreciating
- \$1,500 to \$2,000 to manage an acre once in production
- Positive annual returns once in full production – year 4
- Cumulative returns approachable 7 or more years after establishment

Pre-Plant Year 0 Major Costs

Task	Approximate \$ cost/acre
Weed management	50
Cover crop	50
Site Preparation	250
Deer fencing (amortize or cost share)	500 to 3,200
Nutrient management (P and K)	Variable 150
Total	1,000 to 3,700

Year 1 Major Costs

Task	Approximate \$ cost/acre
Weed management	50
Cover crop	50
Vines	2,200
Trellis construction	3,500
Drip irrigation (amortize)	2,500
Pest Management	200
Nutrient management (N)	35
Weather Station	1,850
Total	10,385

Year 2 Major Costs

Task	Approximate \$ cost/acre
Weed management	50
Cover crop	50
Dormant pruning	125
Canopy management	625
Pest Management	400
Nutrient management (N)	35
Total	1,285

Year 3 Major Costs

Task	Approximate \$ cost/acre
Weed management	50
Cover crop	50
Dormant pruning	500
Canopy management	600
Pest Management	550
Nutrient management (N)	35
Total	1,785

Year 4 Major Costs

Task	Approximate \$ cost/acre
Weed management	50
Cover crop	50
Dormant pruning	450
Canopy management	650
Pest Management	600
Nutrient management (N)	35
Harvest costs	450
Total	2,285

Major Costs: Year 0 to Year 4

Year	Approximate \$ cost/acre
0 Pre-Plant	1,000 to 3,700
1	10,385
2	1,285
3	1,785
4	2,285
Total	16,740 to 19,440

Without irrigation
and Deer Fencing

\$11,000 to
\$14,000/acre

When can you expect return on investment?

Year	Out of pocket \$ cumulative	Return \$
0 – Pre-plant	- 550	0
1	- 8,100	0
2	- 9,750	0
3	- 11,300	1,500 (1.5 tons @\$1,000/ton)
4	-11,200	3,000 (3 tons @\$1,000/ton)
5		4,200 (3.5 tons @1,200/ton).....
10	+130	4,200 (3.5 tons @1,200/ton).....

Example above assumptions: 545 vines/acre, High wire trellis, does not include drip irrigation or deer fence. Calculated using Agriculture Marketing Resource Center Vineyard Feasibility Workbook available at

http://www.agmrc.org/commodities_products/fruits/wine/winery-and-vineyard-feasibility-workbooks/

Year 1 Out of Pocket Costs/Acre

10 – 435' rows 10' x 8' between plants – Single High Wire
August/September

2 soil samples @ \$20	\$ 40.00
2 qts of Glyphosate @\$14/gal	\$ 7.00
200 lbs of Phosphorous (P205) @ 42¢/lb	\$ 84.00
200 lbs of Potassium (K20) @ 31¢/lb	\$ 62.00
2 tons of Quarry Lime @ \$17/ton spread	\$ 34.00
Disk 2X @ \$18/trip	\$ 36.00
Broadcast 50 lbs of Bluegrass Seed @ \$3.00 lb\$	\$ 150.00
Harrow & level area @ \$10	\$ 10.00

3-8-19 Approximate

Year 2 Out of Pocket Costs/Acre

10 – 435' rows 10' x 8' between plants – Single High Wire

545 plants @ \$3.50	\$1,907
545 - 5/8" x 6' bamboo poles @ 45¢	\$ 245
545 - 36" clipper grow tubes @ \$2.00	\$ 1,090
162 - 3-4"x 8' CCA Blunt line posts @ \$7.00	\$ 1,134
20 - 5-6"x 10' CCA Blunt end posts @ \$15	\$ 300
Approx. 4750' 12.5 ga Hi-Tensile Wire @ 5¢/ft	\$ 238
Fencing tool @ \$130 & Wire puller @ \$80	\$ 210
Spinning Jenny wire holder	\$ 175
20 Ratchet Wire Strainers @ \$3.20 & Ratchet @ \$20	\$ 84
10# of 2" staples (approx. 51/lb) @ \$2.5/lb	\$ 25

3-8-19 Approximate

1st yr \$423 + 2nd yr \$5,408

Year 2 Out of Pocket Costs/Acre Cont.

10 – 435' rows 10' x 8' between plants – Single High Wire

40 - 12.5 ga. Wire Gripples @ \$1.30	\$ 52
20 – ¾" x 48" long x 6" helix earth anchors @ \$14	\$ 280
20 lbs of 17'/lb. #9 wire @ \$3.50/lb	\$ 70
6,000 #8 - 2 ½" T Bands 6 cents ea.	\$ 360
Max Tapener (\$75) & extra tape & staples (\$20)	\$ 95
Glyphosate /Chateau/Prowl H2O Herbicide	\$ 40

1st yr \$423 + 2nd yr \$5,408 + 2nd yr \$897

3-8-19 Approximate

Year 3 Out of Pocket Costs/Acre

10 – 435' rows 10' x 8' between plants – Single High Wire

Air Blast Sprayer	\$6,000
Portable mounted tank & hand sprayer	\$ 300
Backpack sprayer	\$ 100
Herbicides	\$ 40
Fungicides & Insecticides	\$ 250
Refractometer (Brix Measurement)	\$ 100
pH tester accurate to 0.01 \$175 + Buffers \$30	\$ 205
5,000' -17' med. grade woven bird net @ 25¢/ft	\$ 1,250
15 grape forks for picking @ \$8	\$ 120
100 40lb harvest lugs @ \$12	\$ 1,200

1st yr \$423 + 2nd yr \$5,408 + 2nd yr \$897 + 3rd yr. \$9,560



A national information resource for value-added agriculture

Cost of Establishment Interactive Excel worksheets

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Grapes

Updated June 2018

Introduction

Wine may represent the most expensive and creative use of grapes, but it is not the only use. Eaten fresh as table grapes, dried as raisins or



Single High Wire Trellis
VSP Trellis
GDC Trellis
Winery

<https://www.agmrc.org/>



Search vineyard or winery worksheet

GDC, VSP & Single High Wire Worksheets

	A	B	C
1	IOWA STATE UNIVERSITY University Extension		 LEOPOLD CENTER
2			 AgMRC agricultural marketing resource center
3	Cost of Establishing a Vineyard		
4	Funding for this Project was provided by the following:		
5		Leopold Center for Sustainable Agriculture	www.leopold.iastate.edu
6		Agricultural Marketing Resource Center	www.agmrc.org
7		Iowa State University Extension	www.extension.iastate.edu
8	The Cost of Establishing a Vineyard Workbook has been created to aid in the development of a business plan. The worksheet assumes the user has a good understanding of grape production, marketing, management and cash flow accounting principals. Any results developed by the worksheet should be reviewed by a Certified Public Account for any errors in calculation or assumptions of the user.		
9	Iowa State University assumes no liabilities or guarantees of the success or failure of any business that uses the Cost of Establishing a Vineyard Worksheet as a decision tool in the start of the business.		
10	The workbook is built using Microsoft Office Excel 2003. The workbook is made up of 23 worksheets. Data entered in one worksheet may be linked to other worksheets. Calculations flow through the worksheets automatically. Save often to protect the information entered.		
11	Created by:	Dr. Paul Domoto, Professor of Fruits, Nuts, & Fruit Trees, Iowa State University	
12		Email : domoto@iastate.edu	
13		Office : 245 Horticulture Hall, Ames, IA 50011	
14		Phone : (515) 294-0035	

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Ready NIM

start FileMaker ... Iowa Stat... 2 Micro... 2 Micro... Vineyard ... Microsoft ... 10:38 AM

INCOME DATA	4/1/09	4/1/10	4/1/11	4/1/12	4/1/13
	- 3/31/10	- 3/31/11	- 3/31/12	- 3/31/13	- 3/31/14
Number of Statements	113	101	115	87	83
Net Sales	100.0%	100.0%	100.0%	100.0%	100.0%
Gross Profit	100.0%	100.0%	100.0%	100.0%	100.0%
Operating Expenses	83.5%	82.4%	83.7%	77.5%	75.75
Operating Profit	16.5%	17.6%	16.3%	22.5%	24.3%
All Other Expenses (net)	8.0%	8.1%	8.5%	4.65	6.8%
Profit Before Taxes	8.6%	9.5%	7.8%	18.0%	17.5%

Source: Risk Management Association eStatement Studies of Vineyards

Data from 83 to 113 vineyards in the last five years provided by the Risk Management Association

Ag Marketing Resource Center
<https://www.agmrc.org/>

\$ Value of Grapes in a 750 ml Bottle of Wine

<u>\$Ton</u>	<u>130 gal./ton</u>	<u>140 gal./ton</u>	<u>150 gal./ton</u>	<u>160 gal./ton</u>
\$ 800	\$1.23	\$1.14	\$1.07	\$1.00
\$ 900	\$1.38	\$1.29	\$1.23	\$1.13
\$1,000	\$1.54	\$1.42	\$1.33	\$1.25
\$1,100	\$1.69	\$1.57	\$1.47	\$1.38
\$1,200	\$1.85	\$1.71	\$1.60	\$1.50
\$1,300	\$2.00	\$1.86	\$1.73	\$1.63
\$1,400	\$2.15	\$2.00	\$1.87	\$1.75
\$1,500	\$2.31	\$2.14	\$2.00	\$1.88
\$1,600	\$2.46	\$2.29	\$2.13	\$2.00

* \$1,200 to \$1,400 predominant price range delivered to a winery in Iowa.

I wish I would have made my mistakes on a much smaller scale

Dave Cushman, Park Farm Winery – Bankston, IA (2008)



Deer Fencing

Farmer Installed

- \$446/Acre
- Avg. ht. 6.5 ft.
- 38% round corner posts
- 28% reinforced corner posts
- 40% did not have smooth wire above woven mesh to increase fence height

Contractor Installed

- 2,400/Acre
- Avg. ht. 8 ft.
- 100% round corner posts
- 100% reinforced corner posts
- 86% had three strands of smooth wire installed above woven mesh to increase fence height

Deer Fencing

<http://icwdm.org/handbook/mammals/Deer.asp>

Internet Center for Wildlife Damage Management
Scott R. Craven
Extension Wildlife Specialist
University of Wisconsin-Madison

Scott E. Hygnstrom
Extension Wildlife Damage Specialist
University of Nebraska



Think Ahead

- Short term goal(s)
 - Grow grapes
 - Contract to winery
 - U-pick
 - Have someone else process grapes
- Long Term goals(s)
 - Expand grape acreage
 - Mechanization
 - Winery
- Mechanization
 - Single curtain
 - VSP
 - HW
 - Row Width 8 to 12 ft.
 - Ground slope < 20 degrees
 - Turning radius
 - Self-propelled
 - Towed

Equipment and Costs

Machine	Purchase price	Years owned
55-hp tractor with cab & AC	30,000	25
Grape Hoe	7,500	25
Utility Vehicle (Gator)	7,000	25
4-WD, ¾ ton pickup	20,000	10
50-gal herbicide sprayer	2,700	25
100-gal airblast sprayer	9,000	25
300-gal airblast sprayer	12,500	25
5-foot rotary mower	1,600	25
Fertilizer/seed spreader	1,500	25
Post Driver	2,000	25
PTO driven auger	1,200	25
8-ft flatbed trailer	2,000	25
Total Cost	73,500	25

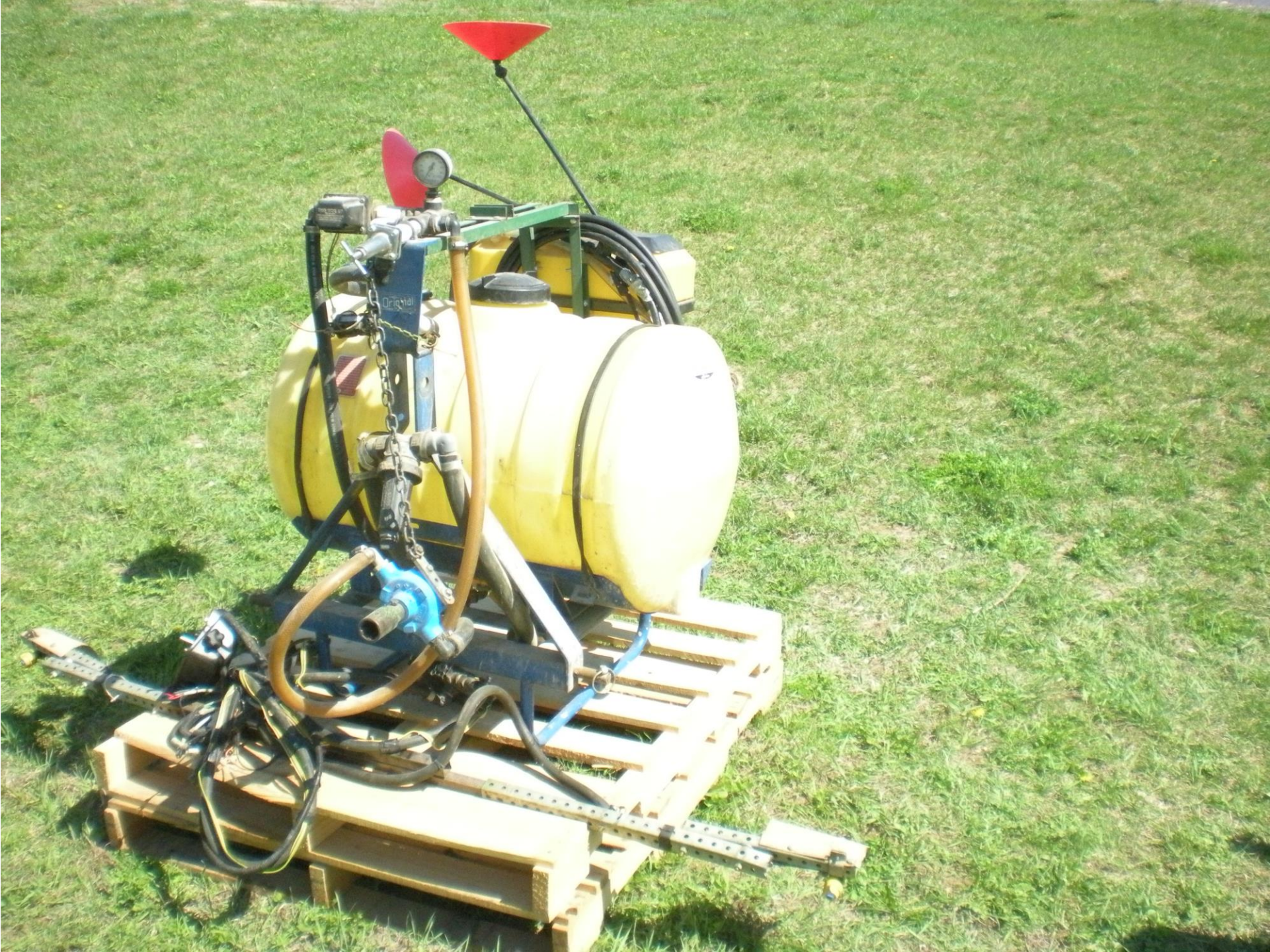
Purchase prices
from 2005 mid-
Atlantic region.



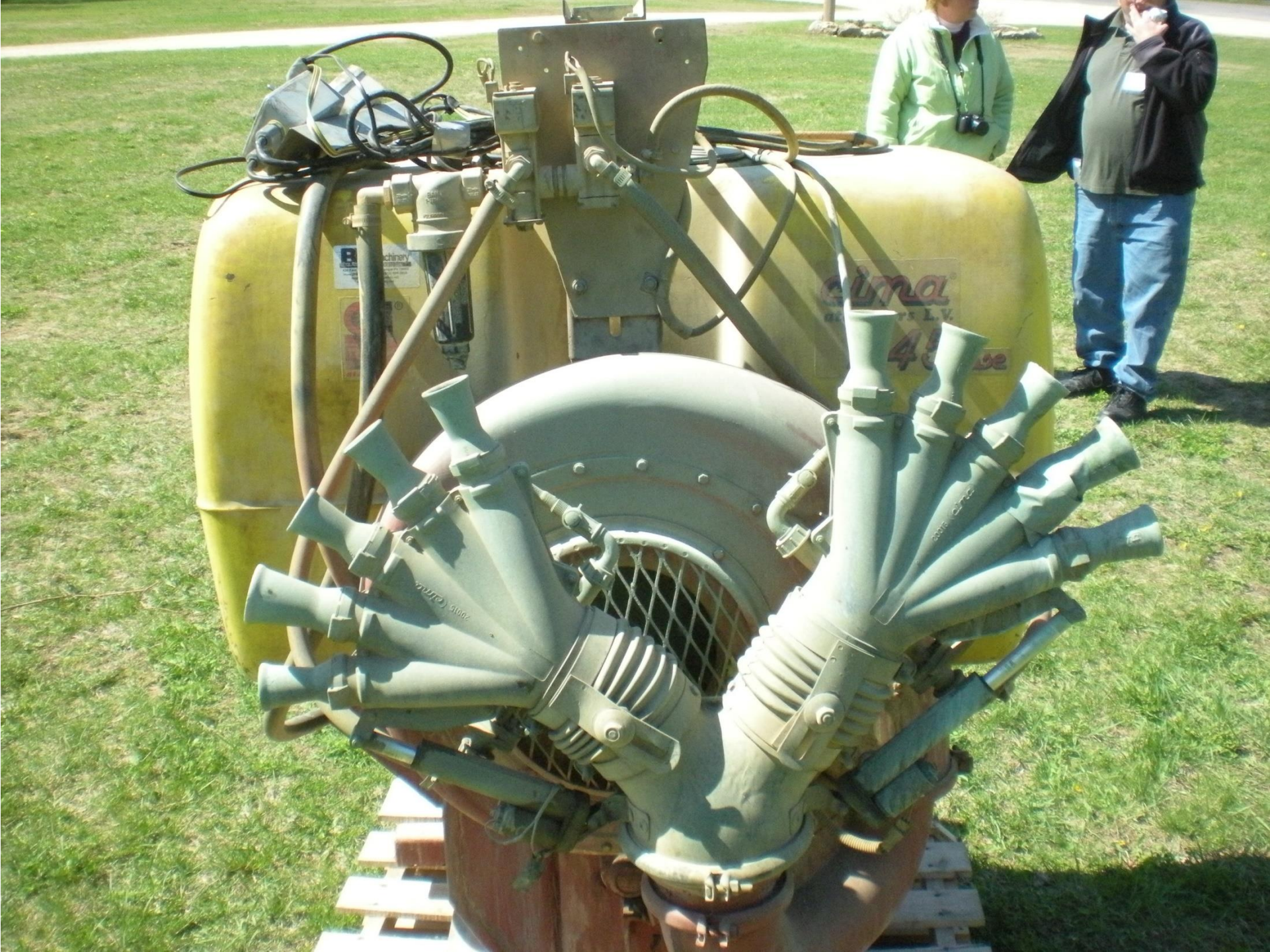
















Business Plan

- Cover letter to lender to read business plan
- Executive summary
 - 1-2 page summary
 - Why you are undertaking the business
- Industry background
 - Today
 - Past and projections for future growth
 - How your plan fits with the current and future economy
- Objectives and Goals
 - Mission statement
 - Why you are undertaking the project
 - Timeline includes starting date

Business Plan cont.

- Structure
 - Owners
 - Legal entity
 - Sole proprietor
 - LLC
 - S corporation
 - Partnership
 - Management
 - Titles and positions and position descriptions

References

- Winery and Vineyard Feasibility Workbooks, Agriculture Marketing Research Center http://www.agmrc.org/commodities_products/fruits/wine/winery-and-vineyard-feasibility-workbooks/
- Wine Grape Production Guide for Eastern North America. Natural Resource, Agriculture and Engineering Service Cooperative Extension
- Business Planning and Economics of Midwestern Grape Production
<https://ag.purdue.edu/hla/fruitveg/Documents/GrapEcon.pdf>
- Winery Business Plans and Feasibility Studies Iowa State University
<https://www.extension.iastate.edu/wine/business-plans-feasibility-studies>

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- Thanks to Michael for allowing me to use some of his slides in the presentation