



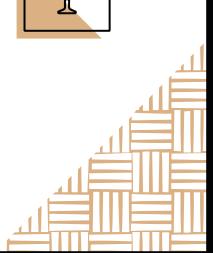
# Development pathways for a business in the high-end wine industry





Conventional vs. Ecological approach







# Team

20 students USAMV Cluj-Napoca



## The coordinators



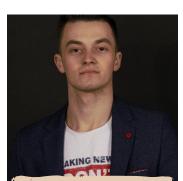
Dénes LACZKÓ

Drd. Alexandru

**OLAR** 



Prof. Dr. Mugurel JITEA



**Dorin RUS** 





## **Certification team**







# Conventional grape productions team



Animal

sciences



**BONCHIŞ** 

Agriculture





Ariana TODEA Animal sciences



Rareș LUCA Agribusiness





# **Ecological grape production team**













# Wine production team



Agribusiness







Alexandru **OPRISA Agribusiness** 

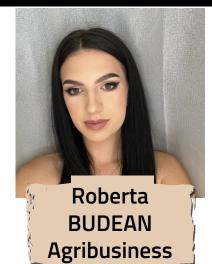


Mara JURJE **Agribusiness** 





# Sales & Marketing team











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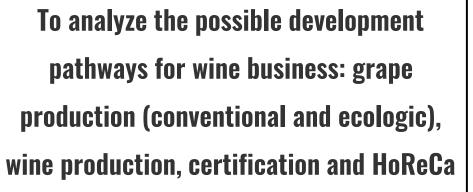
Grape Production Market







# Main objective



## **Activities**



Romania: La Salina Winery; Carastelec Winery; Nachbill

Winery

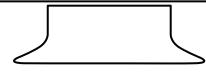
**Hungary**: Grand Tokaj Winery; Sauska Winery; Kardos Winery

**Shadowing program** - interaction with experts

**Discussions with experts** 







#### What are we exploring?

Winery and wine production in Biertan Village, Sibiu County

> Certifications Authorizations Standards

Grape production Wine production

Market and Wine Tourism

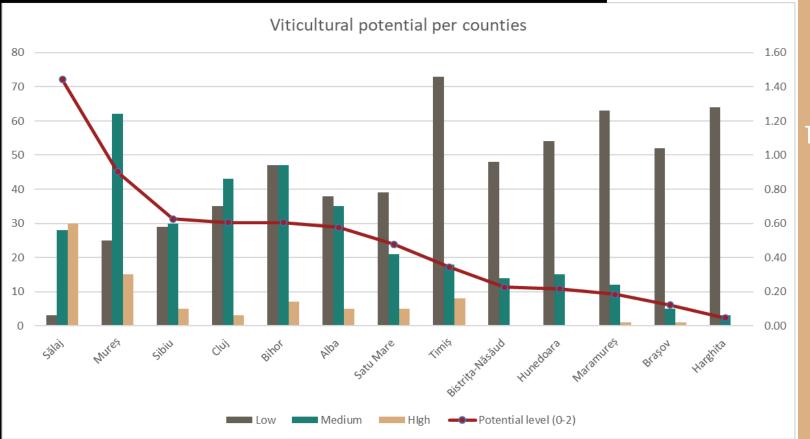
Conventional vs. Ecological

Costs Conclusions



All the calculations were made on cost centers

# **Study of the Transylvanian counties**





#### 4 counties:

- Sălai
- Mures
- Sibiu Clui

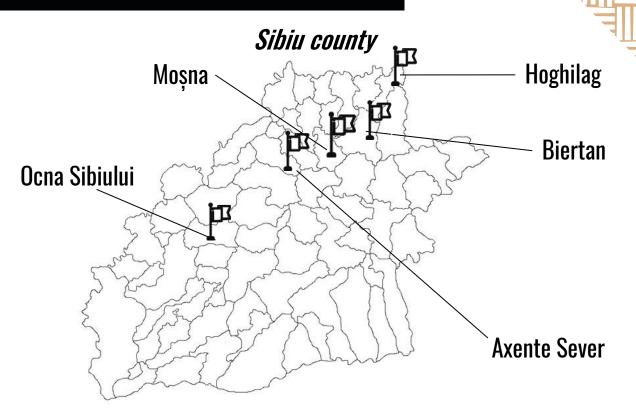
# Research of the Transylvanian counties

	SALAJ	MUREŞ	SIBIU	CLUJ	
Average temperature spring/summer	12 °C / 19°C	10 °C / 25 °C	10,6 °C / 21 °C	15°C / 25 °C	
Average temperature autumn/winter	12 °C / -6°C	10,5 °C / -3 °C	4 °C / 0 °C	12°C / 0°C	The selected
Average precipitation	575 mm	437 mm	752 mm	573 mm	county: Sibiu
Dominant type of landscape	Hilly, hills	HIIIy ,hills	Hill, plateau, mountain massiv	Hilly, hills	
Competition (wineries)	5 - CAEN 1102	6 - CAEN 1102, 17-CAEN 0121 2- CAEN 0127	7 - CAEN 1102	2- CAEN 1102, 5- CAEN 0121,	ام اللي
Restaurants	218 – CAEN 5610	771- CAEN 5610	605 – CAEN 5610	1640 - CAEN 5610	

# Localisation of the plantation

#### Why Biertan?

- 1. On the list of UNESCO World heritage sites
- 2. CDO Târnave
- 3. History of wine culture
- 4. Most of the plantations are gone
- 5. Tourism in the village
- 6. The legend of the castle





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Top players in wine industry

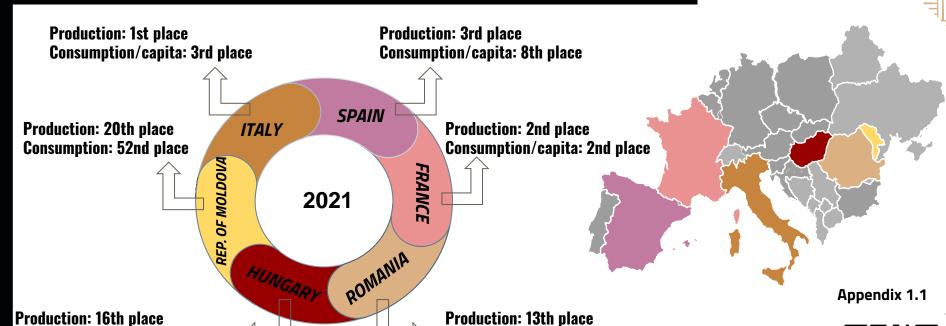
Consumption/capita

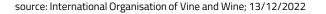




## Wine industry in Romania versus European players

Consumption/capita: 25th place

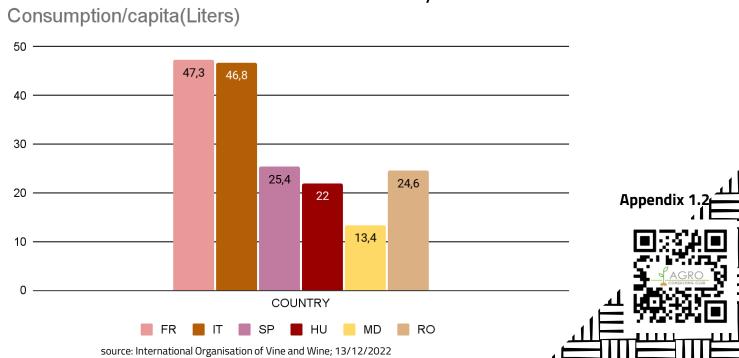




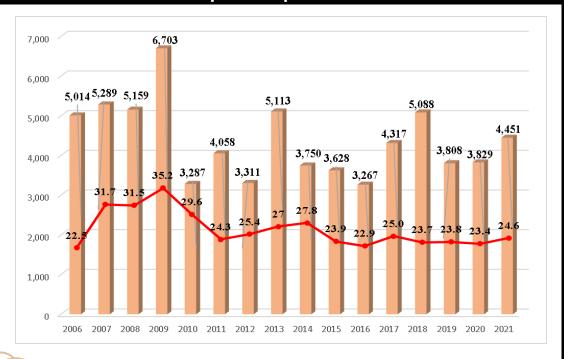
**Consumption/capita: 14th place** 

### Consumption/Capita in a year

On average, in Romania, more wine is consumed than is produced



# The comparison of annual wine production and annual wine consumption/capita in Romania



Wine internal production does not cover the internal demand. There is an increasing trend in consumption



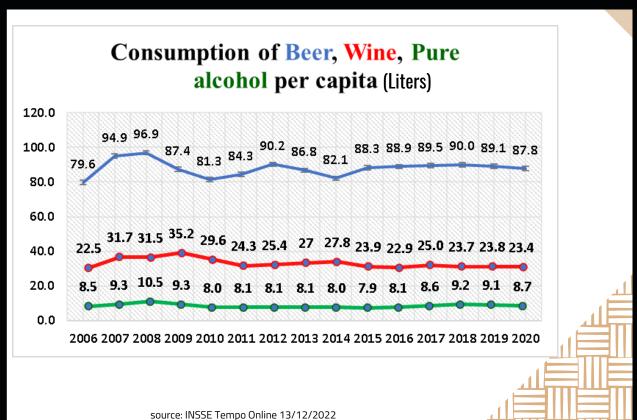




average annual consumption (L)

annual production (hl)

#### CONSUMPTION OF BEER, WINE AND PURE ALCOHOL PER CAPITA

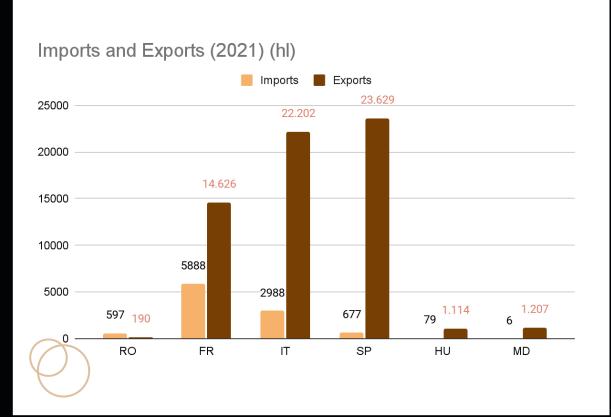


Wine consumption occupies an intermediate place in the preferences of the population

Appendix 1.4



# Imports & Exports (2021)



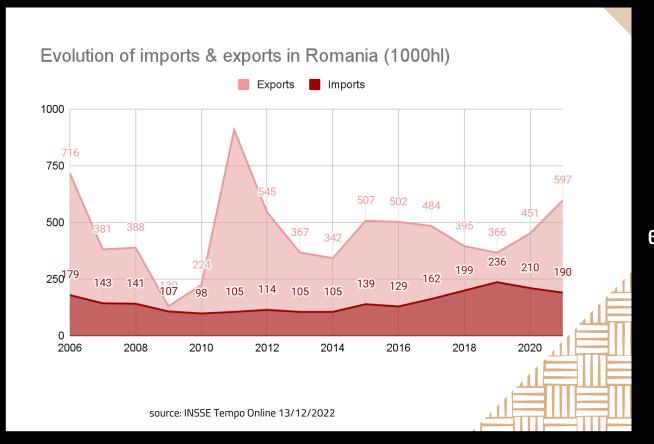


Romanian wine imports exceed exports comparing to several other European wine producers

Appendix 1.5



## **Evolution of imports and exports in Romania**

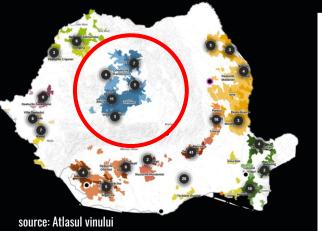


# Imports and exports are very fluctuating

The last three years are characterized by an increase in exports and a decrease in imports

Appendix 1.6



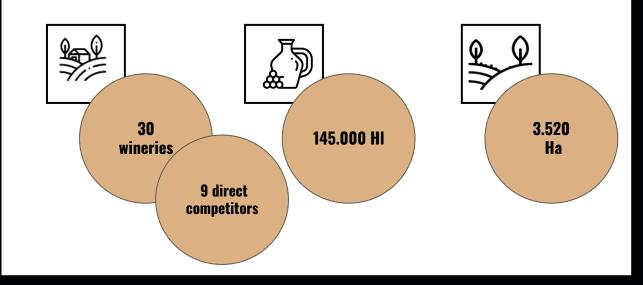


In the Transylvanian Hills, mainly white varieties are cultivated, and out of a total number of 30 wineries, only 10% are ecological.

Appendix 1.7



# Transylvanian hills



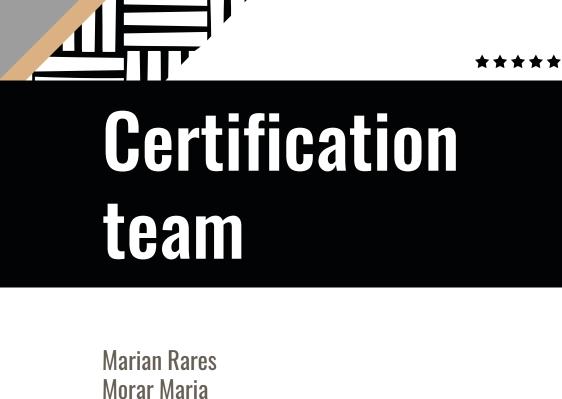
#### **Conclusions**

Possibility for developing a business on the wine market

Transylvania is ideal for white wine

At the present moment in Romania, more wine is consumed that produced

An ecological business would be suitable because there are only a few such businesses in Transylvania





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Controlled
Designation of Origin
Târnave





05 Ecological Legislation





# Legislation

Law of Vineyard and Wine no.164/2015

= establish the **general framework** for the operation of the wine industry in terms of **production**, **certification of origin**, **marketing** and **control** of wine products.







# Legislation

**ONVPV - National Office for Vineyard and Wine Production** 

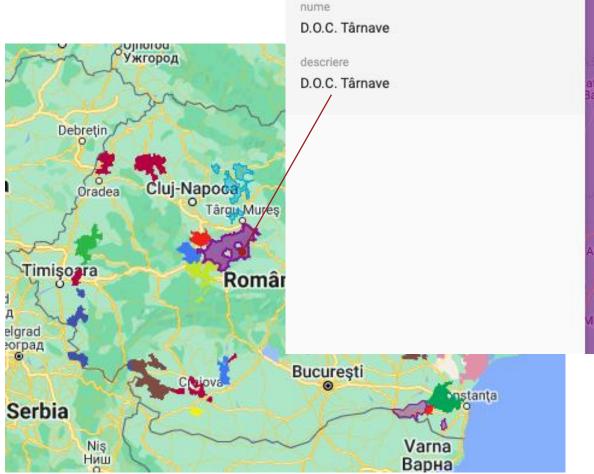


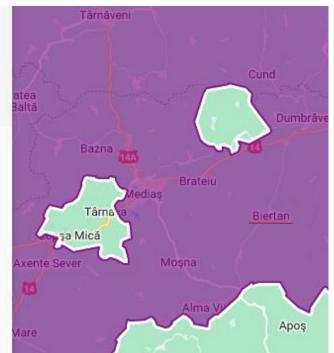
# Registered name

**ONVPV - National Office for Vineyard and Wine Production** 

**CDO** - Controlled Designation of Origin **GI** - Geographical Indication











forbidden - transport the grapes in polythene bags



the quality of the grapes is determined when they are received at the winery



qualitative conditions

- 100% purity of variety
- good health status



plantation density - the minimum number of 3,500 stumps planted per hectare



the execution of irrigation is allowed only in dry years, with the notification of the O.N.V.P.V.



fertilization will be carried out by applying organic fertilizers once every 4-5 years, as well as by administering chemical fertilizers in moderate doses



in the plantations, an effective phytosanitary protection will be ensured to achieve a good health condition of the harvest



mandatory information on the label

https://www.onvpv.ro/sites/default/files/pdfs/caiet\_de\_sarcini\_doc\_tarnave\_249ro.pdf





Appendix 1

#### **CDO Tarnave**

#### CDO Aiud

#### **CDO Sebes Apold**

Landscape

Hill configuration.
Mid level altitude (400-600 m).
The slope of the land is registered between 5-20%.
General orientation - S-E.

Hills and lowlands formed by Mures and Aries. Mid level altitude (300-500 m). Hill configuration. Inter-river. Mid-level altitude between 250-600 m.

Hydrography	The Tarnava Mica and Tarnava Mare rivers.	The Mures and Aries rivers.	The Mures river.	
Climate	Moderate Continental	Moderate Continental (dangerous hard winters because of the Apuseni Mountains)	Moderate Continental	
Thermal Regime		Annual medium temperature varietes between 8-9 C.	Annual medium temperature 9,3 C	
Humidity Regime	The air humidity - 60-80%	Atmospheric precipitation between 550 - 700 mm/year.	Atmospheric precipitation between 550 - 600 mm/year.	
Soils	Brown eumesobasic. Brown Illuvial Clay.	Brown Illuvial Clay. Chernozem.	Brown Illuvial Clay. Chernozem.	
Grape Varieties	Chardonnay, Riesling de Rhin, Fetească Regală, Pinot Noir, Fetească Neagră.	Chardonnay, Riesling de Rhin, Fetească Regală, Pinot Noir, Fetească Neagră.	Chardonnay, Riesling de Rhin, Fetească Regală, Pinot Noir, Fetească Neagră.	



# **Grape Production kg/ha**

Grape Varieties	Maximum production/variety (kg/ha)			
	DOC-CMD	DOC-CT	DOC-CIB	
White Grapes Varieties		·	·	
Feteasca regala	14.000	-	-	
Chardonnay	12.000	10.000	-	
Riesling de Rhin	12.000	10.000	8.000	
Black Grapes Varieties				
Pinot Noir	12.000	10.000	7.000	
Feteasca neagra	12.000	10.000	7.000	





# Wine Yield hl/ha

Grape Varieties	The wine yield/variety (hl/ha)				
	DOC-CMD	DOC-CT	DOC-CIB		
White Grapes Varieties					
Feteasca regala	94	-	-		
Chardonnay	80	67	-		
Riesling de Rhin	80	67			
Black Grapes Varieties					
Pinot Noir	78	65	45		
Feteasca neagra	78	65	45		







# Ecological Legislation

Regulation 2018/848 of European Parliament and of the Council regarding the ecological production and labeling of ecological products





## **Ecological Production and Processing**





**CONVERSION** 



**ECO CERTIFICATION** 

1st year

2nd year

3rd year

until the producer wants to stay in the system

#### Inspection

950 euro + VAT/year \*sampling - 210 euro + VAT

#### Certification

950 euro + VAT/year sampling - 210 euro + VAT \*processing - 600 euro + VAT

.... 1160 euro + VAT



#### **Authorizations**

**Functioning authorization** 

Veterinary health and food safety registration

Fire safety permit and other obligations regarding extinguishing fires

Ministry of Agriculture authorization

**Environment authorization** 

Functioning authorization regarding sanitation and other legal obligations in

the Public Health sector

DSVSA authorization

Functioning authorization regarding work's security and health

**HACCP** 

Procedure regarding personnel hygiene and control of health status

Procedure for sanitizing machines and work utensils

Procedure for Disinfection and Deratization

Waste management

Procedure regarding training of personnel in the food sector

Technological flow diagram

Food Traceability and Labeling



Project - architect
Technical documentation for
obtaining the authorization
Urban Certificate

notice regarding the supply of electricity
environment notice
public health notice
notice regarding the prevention and extinguishing
of fires
sanitation notice

**Construction Authorization** 



### **Authorizations**

Functioning authorization
Veterinary health and foo
Fire safety permit and o'
Ministry of Agriculture
Environment authorizat
Functioning authorizat
the Public Health secto
DSVSA authorization
Functioning authorization
HACCP

Procedure regarding personnel hygiene a Procedure for sanitizing machines and work Procedure for Disinfection and Deratization Waste management

Procedure regarding training of personnel in the food sector

Technological flow diagram

Food Traceability and Labeling



egarding the supply of electricity ment notice

health notice

e regarding the prevention and extinguishing vires

anitation notice

**Construction Authorization** 



## **ISO Certificates**





ISO 9001 - Quality Management System

ISO 14000 - Efficient Environment Management System

ISO 22000 - Food Safety Management System

**TOTAL: 7000 EURO** 



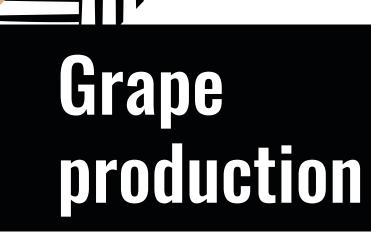
#### **Conclusions**

Certifications and standard relevant for high end industry

Authorisations need to be respected

Direction promoted by EU = benefits

Eco Certification
- takes time and
money





Vinț Diana Jecan Tamara Bonchiş Ştefan Gheorghe Alexandra Luca Rareş Lukacs Rajmond Neamțiu Valentina Șaitis Adina Todea Ariana





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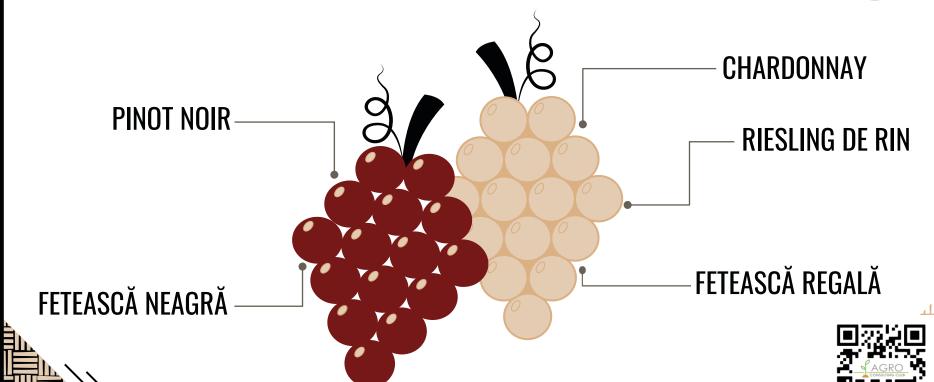






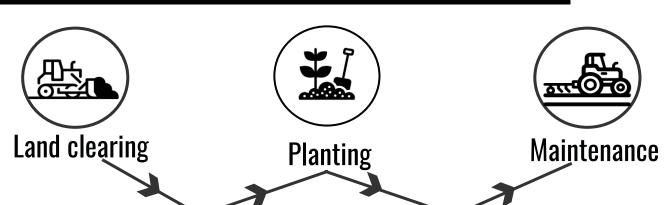
## The selected varieties





## Tehnological sheets- 1 hectars





Preparing the land







CONVENTIONAL



**ECOLOGICAL** 



# Land clearing



Wire disassembly



Remove supports



Destruction of wood material



**Cutting the strings** 



Removing the hubs



Scrap collection



1.980 €/ha



# Preparing the soil



Fertilization



Scarification



Disc harrow



Mechanical unclogging



**Plowing** 



**Fertilization** 



**Land leveling** 





2.168 €/ ha



1.291 €/ ha

## **Planting**



Marking the land



Semi-mechanized planting



Tutors



**Mechanical ploughing** 



Mudding



Watering 101/ plant



Trellising



Hilling

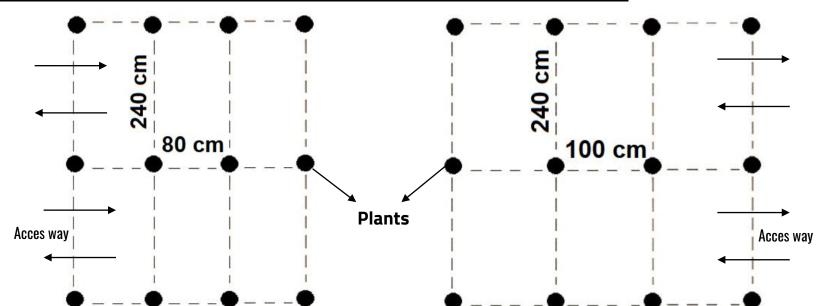


**28.629 €/ha** 



22.597 €/ha

## Planting scheme



**Conventional**Density: 5.208 seedling/ha



28.629 €/ha

#### **Ecological**

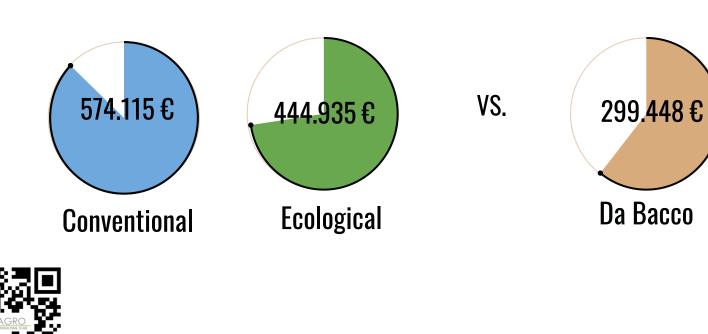
Density: 4.167 seedling/ha



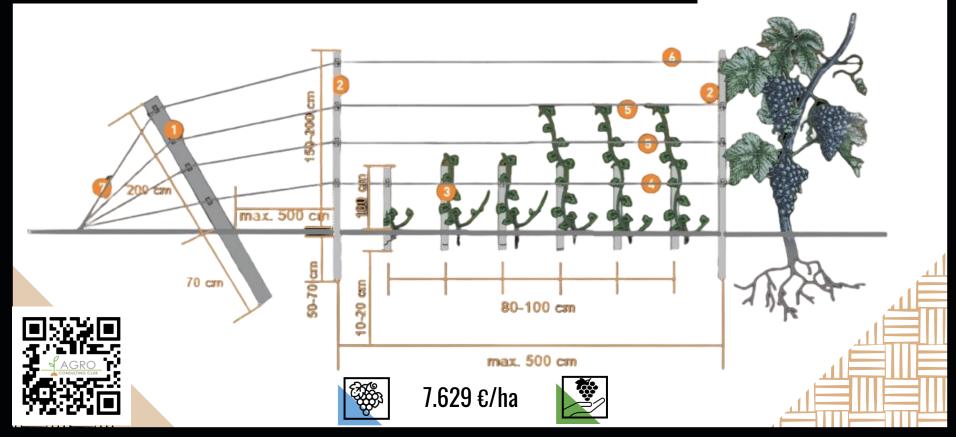
22.597 €/ha



# Price comparisons for preparing the land and planting



# Support system



## Installation of the support system





**Making holes** 



**Installation of primary** trellises



**Installing and** stretching wire



Marking the land



Distribution of trellises



Installation intermediate trellis





10.900 €/ha



## Maintenance 1st year



Mechanical plowing



**Growth pruning** 



Weeding Tying sprouts



**Treatments** 



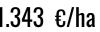
Strings pruning



Mechanical and manual plowing









1.747 €/ha

## Maintenance 2<sup>nd</sup> and 3<sup>rd</sup> years







Pruning



**Treatments** 



Cover crop



**Growth pruning** 



Weeding. Tying sprouts



Filling up gaps





AVG: 2.035 €/ha



AVG: 2.073 €/ha

## Yearly maintenance



#### Disease and pest control and fertilization plan-conventional

#### **Vegetal rest**



Herbicides (monocot+dicot plants)



Plasmopara viticola (Downy mildew)



Lice (Parthenolecanium corni, Eriosoma lanigerum)



Fertilization with NPK (only in the I and II vear)

#### Sprout 10-15 cm



Plasmopara viticola (Downy mildew) Erysiphe necator (Powdery mildew)



Mites (Panonycus ulmi, Eriophtes vitis, Empoasca vitis)



Foliar fertilization

## **Before blooming**



Plasmopara viticola (Downy mildew) Ervsiphe necator (Powderv mildew) Guignardia bidwellii (Black rot)



Moth (Lobesia botrana, Sparganothis pilleriana)



**Foliar fertilization** 

#### Sprout 3-5 cm



Erysiphe necator (Powdery mildew)



Mites (Panonycus ulmi, Eriophtes vitis, Empoasca vitis)



Foliar fertilization



Plasmopara viticola (Downy mildew) Ervsiphe necator (Powdery mildew)

Sprout 25-30 cm



Foliar fertilization



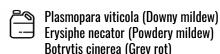






#### Disease and pest control and fertilization plan-conventional

#### After blooming



#### Bunch compaction



Plasmopara viticola (Downy mildew) Erysiphe necator (Powdery mildew)



Mites (Panonycus ulmi, Eriophtes vitis, Empoasca vitis)



Foliar fertilization

### **Fruit ripening**



Botrytis cinerea (Grey rot)



Moth (Lobesia botrana, Sparganothis pilleriana)

#### **Berry growth**



Plasmopara viticola (Downy mildew) Erysiphe necator (Powdery mildew)



Lice (Parthenolecanium corni)



Foliar fertilization

#### **Bunch** growth



Plasmopara viticola (Downy mildew) Erysiphe necator (Powdery mildew) Botrytis cinerea (Grey rot)



Foliar fertilization



Herbicides



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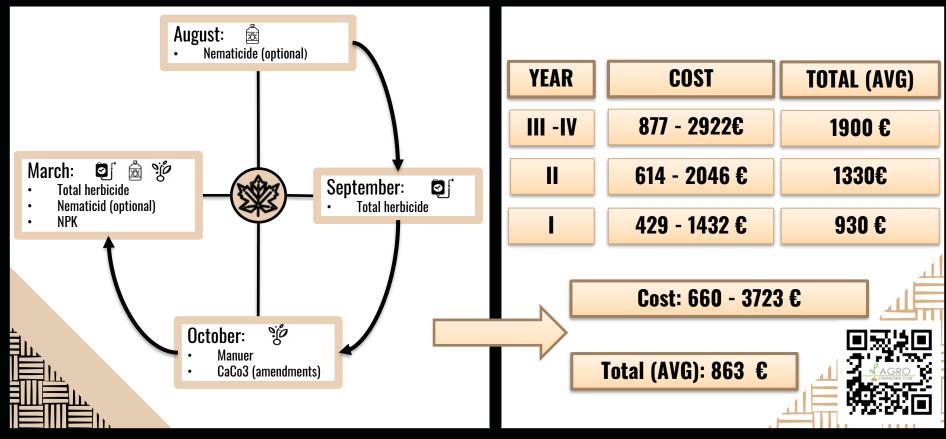
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# Land preparation

## Costs



#### Disease, pest control and fertilization plan. Ecological solutions

#### Vegetal rest



Plasmopara viticola (Downy mildew)



Mites (Panonycus ulmi, Eriophtes vitis, Empoasca vitis) Louse

#### Sprout 10-15 cm



Plasmopara viticola (Downy mildew) Erysiphe necator (Powdery mildew)



Moth (Lobesia botrana, Sparganothis pilleriana)



Fertilizer

#### .After blooming



Plasmopara viticola (Downy mildew) Erysiphe necator (Powdery mildew) Guignardia bidwellii (Black rot)



Mites (Panonycus ulmi, Eriophtes vitis, Empoasca vitis)

#### ↓Sprout 3-5 cm



Erysiphe necator (Powdery mildew) Botrytis cinerea (Grey rot)

#### Before blooming



Plasmopara viticola (Downy mildew) Erysiphe necator (Powdery mildew)



Mites (Panonycus ulmi, Eriophtes vitis, Empoasca vitis) Louse



Fungicide



Pheromonal traps



Fertilizer - Soil disinfection and disinsection



#### Disease, pest control and fertilization plan. Ecological solutions

#### Berry growth





Soil disinfection and disinsection

#### Bunch growth



Plasmopara viticola (Downy mildew) Erysiphe necator (Powdery mildew)



Moth (Lobesia botrana, Sparganothis pilleriana)



**Fertilizer** 

#### Before harvesting



Plasmopara viticola (Downy mildew) Erysiphe necator (Powdery mildew) Botrytis cinerea (Grey rot)

#### **Bunch formation**



Plasmopara viticola (Downy mildew) Ervsiphe necator (Powderv mildew) Botrytis cinerea (Grev rot)



Mites (Panonycus ulmi, Eriophtes vitis, Empoasca vitis)

# ↓ Fruit ripening

Erysiphe necator (Powdery mildew)



Mites (Panonycus ulmi, Eriophtes vitis, Empoasca







Pheromonal traps Fertilizer + Soil disinfection and disinsection



## Treatments costs - ecological



Annual cost: 798 €/ha





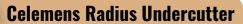
# **Equipments**















# **Equipments**











# **Equipments**

**Manure & Fertilizer Spreader** 







108.832,83 €









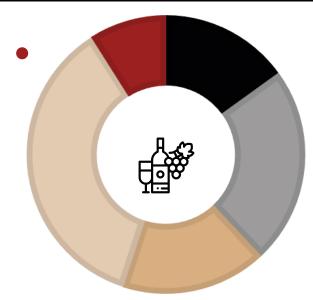


## The division of the terrain -23.5 ha



1,5 ha • Fetească neagră

11 ha • Pinot Noir



- 3 ha Riesling de Rin
  - 5,4 haChardonnay
- 2.6 ha Fetească regală

Conventional



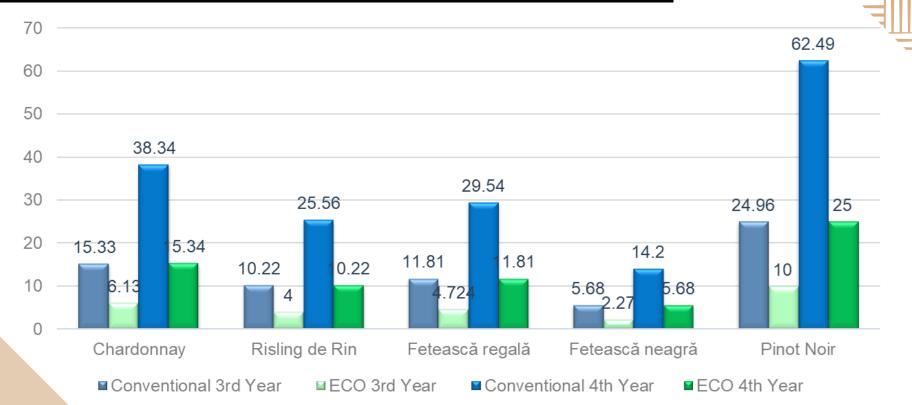
Total production/year: 170,13 tone

**Ecological** 

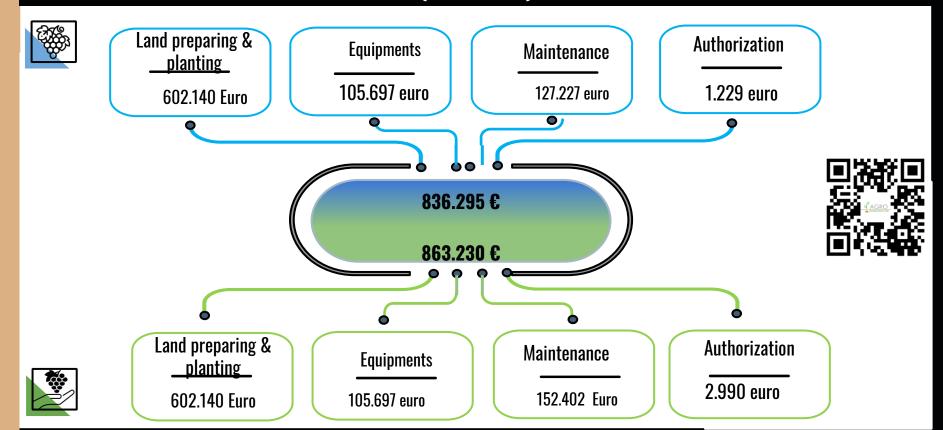


Total production/year: 68.05 tone

## Grape production - tons/year

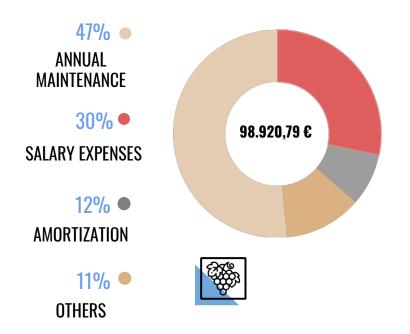


# Total establishment expenses-Conventional & Ecological (23.5 ha)



# Annual Expenses First 3 years of production



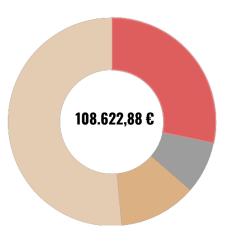














# Annual Expenses Year 4 & 5 of production





31% •

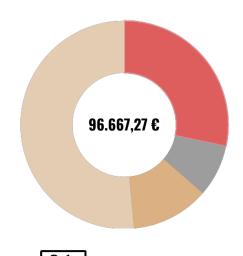
SALARY EXPENSES

10% •

**AMORTIZATION** 

12%

**OTHERS** 



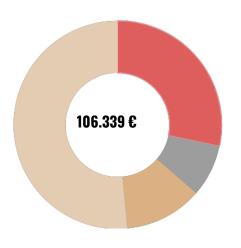


28% 
SALARY EXPENSES

8% 

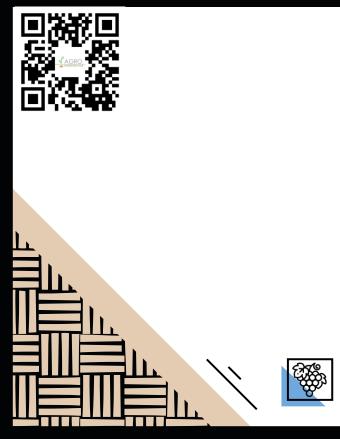
AMORTIZATION

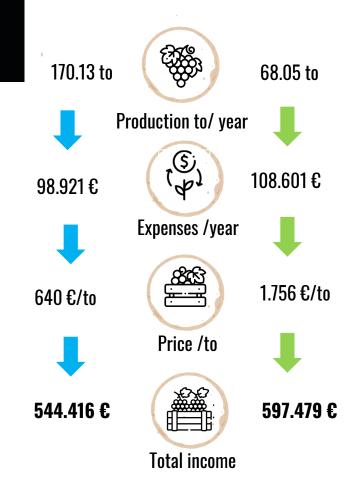
12% • OTHERS





### Income **Conventional vs Ecological**

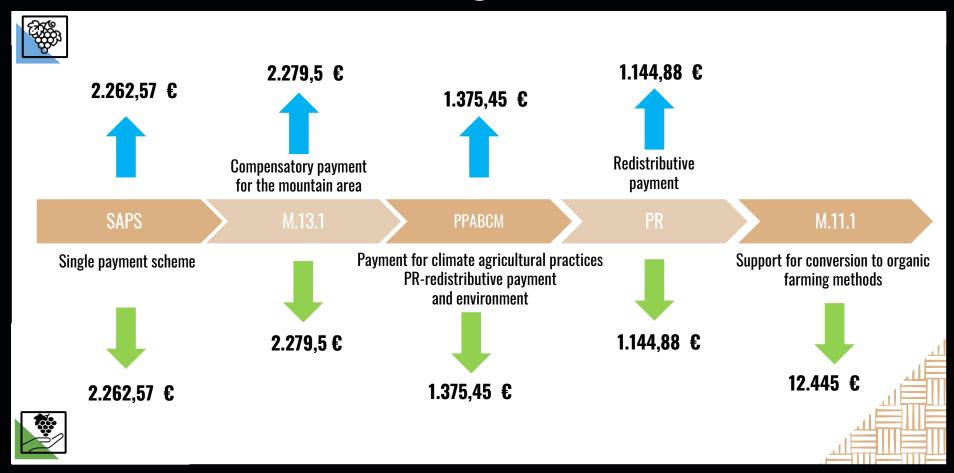


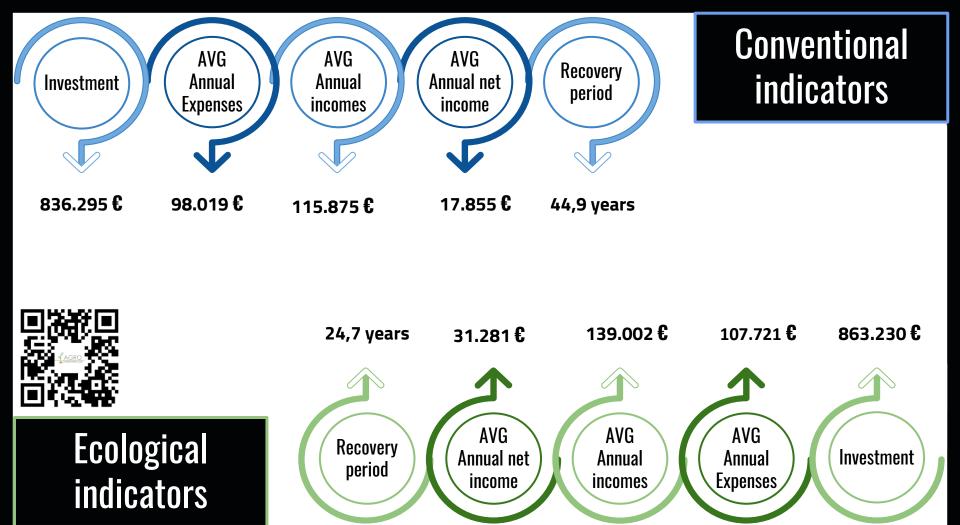






## Conventional and Ecological income for 23.5 ha





#### **Conclusions**









Mechanized working

Maintenance costs are very similar for both systems

Similar costs for both systems

Weather as the biggest risk factor



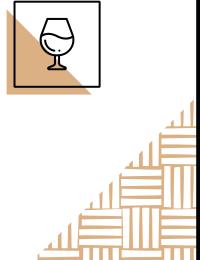


Mara Jurje

Alexandru Oprisa

Bianca Stanca

Andrada Pop



\*\*\*\*

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O1 Construction

103 Technological flow

Organization of production

The initial investment



# Winery visits- inspirations



















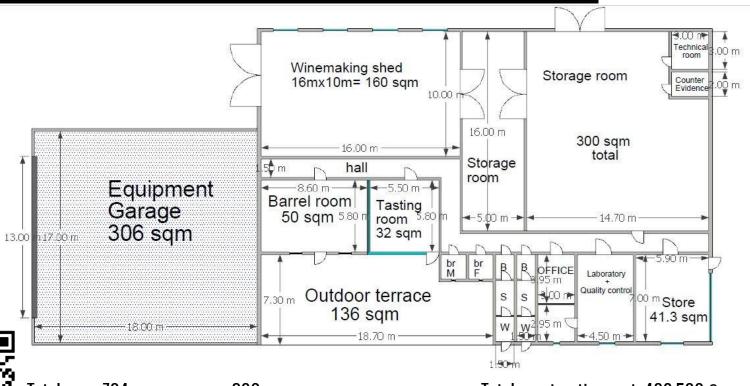






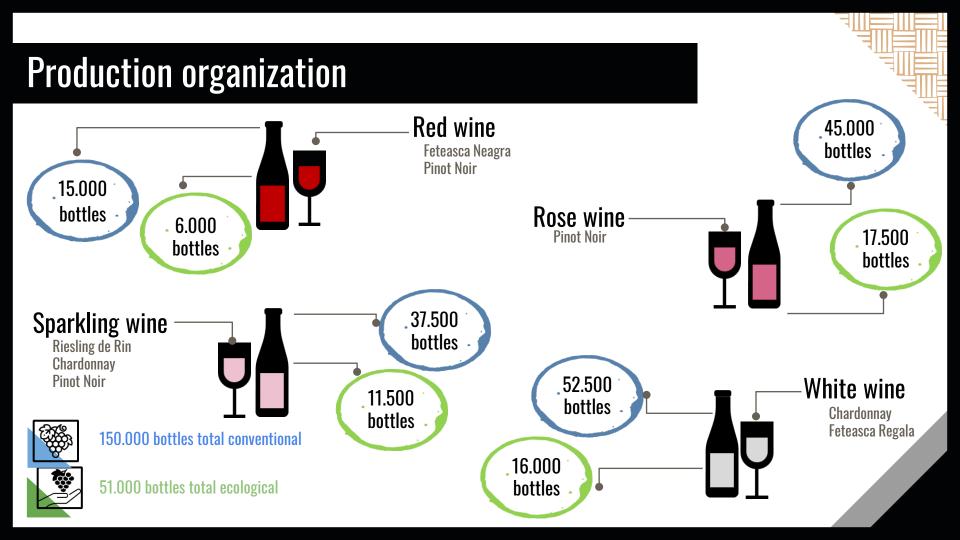


### Winery sketch

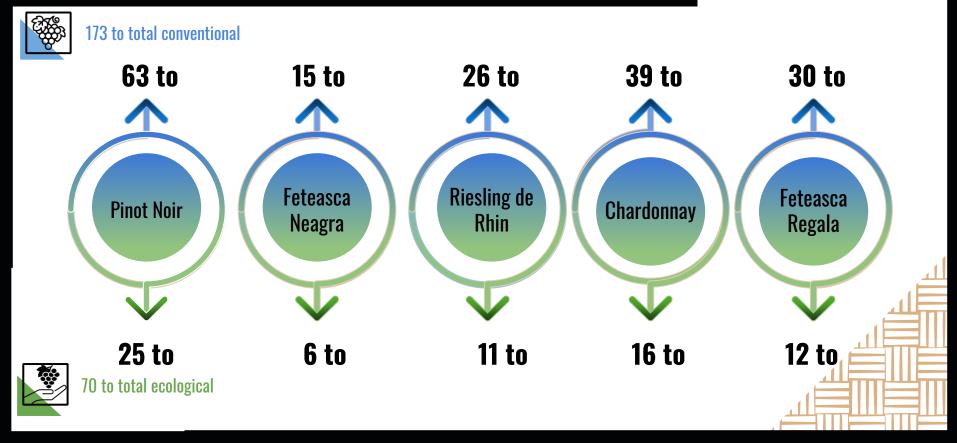


Total area :704 sqm + garage 306 sqm

Total construction cost: 408.500 €

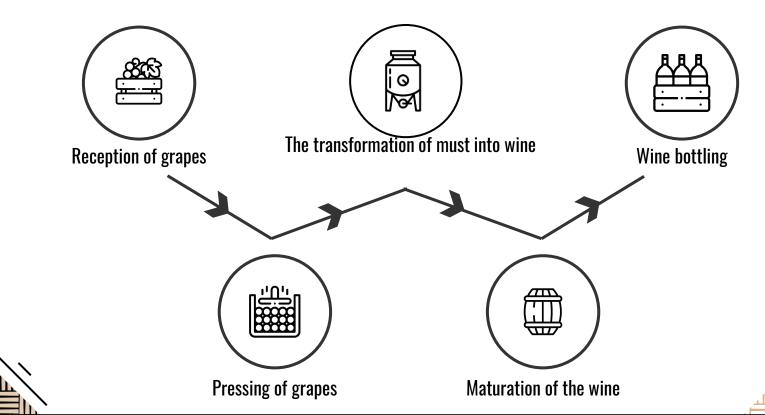


## Raw material required annually



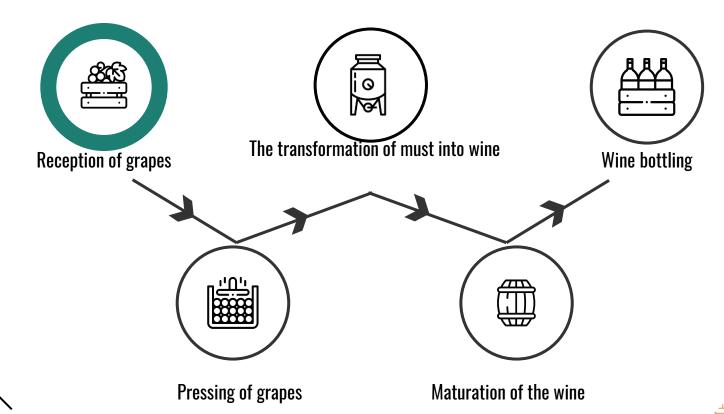
# Technological Flow





# Grapes reception





### **Grapes reception**



50.000 € Smashing machine and destemming



Conveyor belt for plant residues

20.000€



30 min



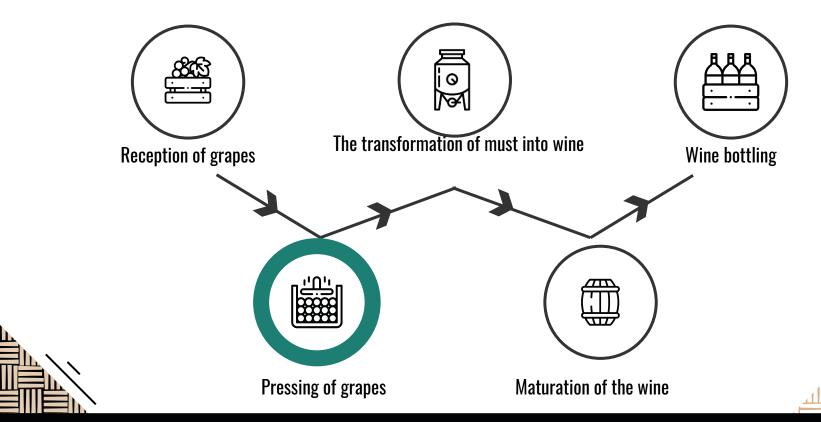






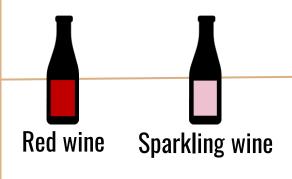
# Pressing the grapes



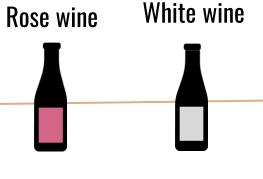


#### **Pressing of grapes**

Pneumatic press 14.000 € Pomp 4.000 €







- Must ravac is draining right after crushing
- It's pressed sparkling wine once, white wine twice
  - The must is assembled

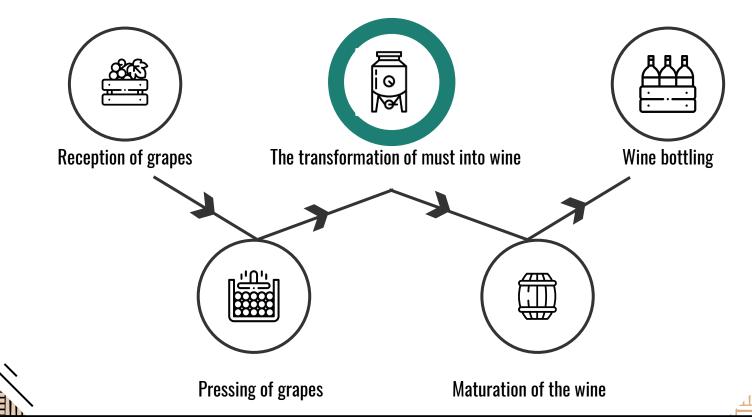
After pulling the wine from pomace ,ravac wine is pressed once
 Then the must is assembled



Processing capacity 5-8 tons (aprox 30 min)

#### The transformation of must into wine



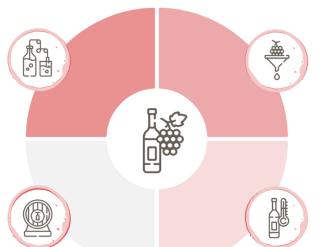


#### Steps in the fermentation of rose and white wine



#### **Clarifying the must**

Sulphur dioxide or bentonite

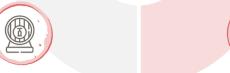


#### **Filtration**

Sulphur dioxide

#### **Acidity correction**

Different acids or bicarbonate



#### **Alcoholic fermentation**

Fermentative yeasts



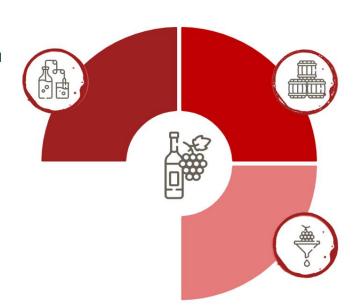


#### Steps in the fermentation of red wine



#### **Alcoholic fermentation**

Fermentative yeasts



**Maturing in barrels** 

#### **Filtration**

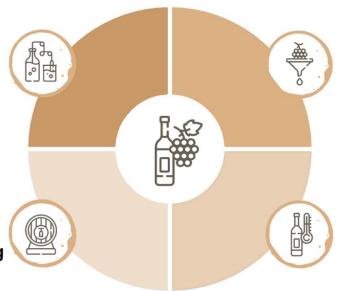
Sulphur dioxide



#### Steps in the fermentation of sparkling wine-Champenoise/ Classical Method



Fermentation 1 of the base wine



Freezing and disgorging the wine Administration of draft liquor



Wine blending

Fermentation 2
The administration of yeasts=> triggering the bubbles

### **Equipment for fermentation**



50 hl tank- 5.000 € 100 hl tank- 10.000 €

5 tanks 50 hl and 2 tanks 100 hl Classic tanks with heating and cooling system

#### White wine tank



#### Red and rose wine tank

6 tanks 50 hl and 2 tanks 100 hl Recirculation system of the pomace

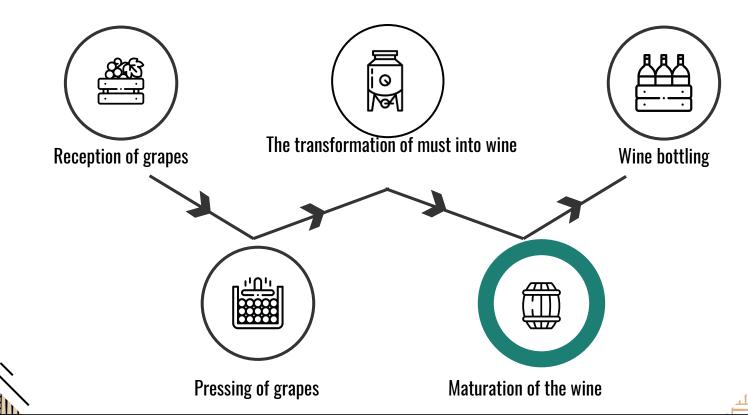


50 hl tank- 15.000 € 100 hl tank- 30.000 €



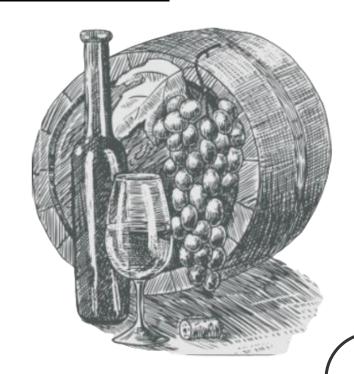
### Maturatin of the wine



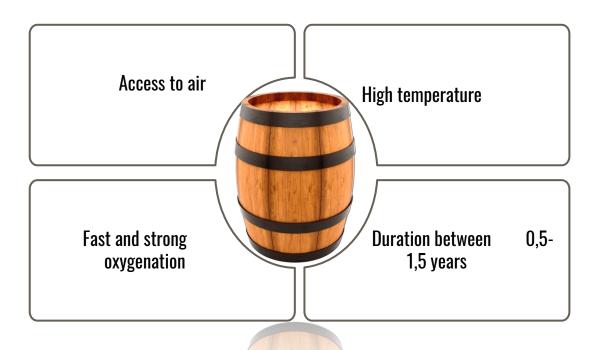


#### Wine Care

- After fermentation the wine unstable, so it can't be consumed (taste of yeast, impregnated with CO2).
- The wine must be kept in the cellar where it will be subjected to trials (filling gaps, periodic sulphite ,homogenizing, blending corrections -tannin,acidity,color )
- Is kept at temperatures of 8-14 degrees with humidity of 80 percent



#### Maturation of the wine

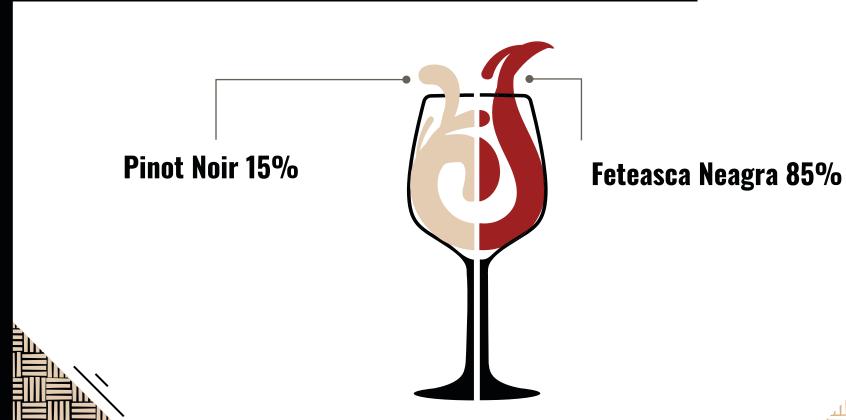




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# Blending of red wines

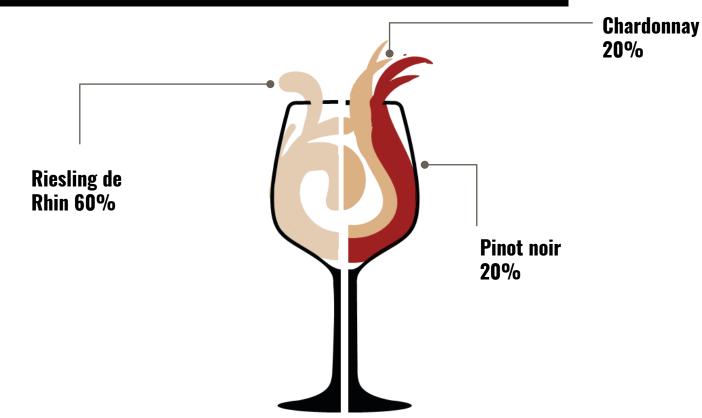






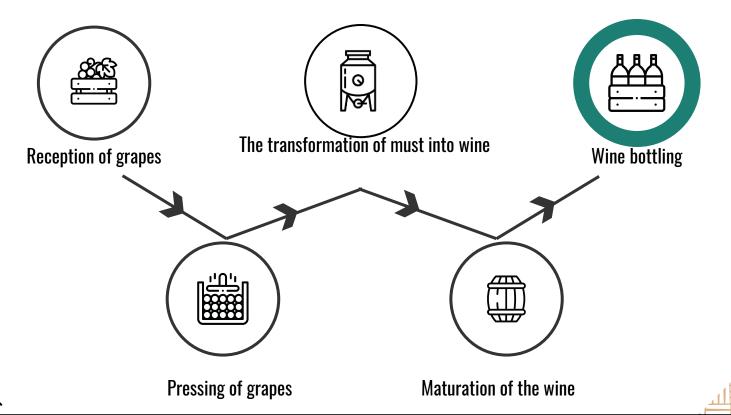
### Blending of sparkling wines





# **Bottling and storage**





### **Equipment for fermentation and maceration**



the bottling line the clearing line capacity: 500 pcs/h

Sparkling wine - 25.000€

#### **Still wines -** 75.000 €

the bottling line
filling line and screwcap
washing /drying line
labeling line
packing line
capacity: 500 pcs/h







# Other equipment for wine operations

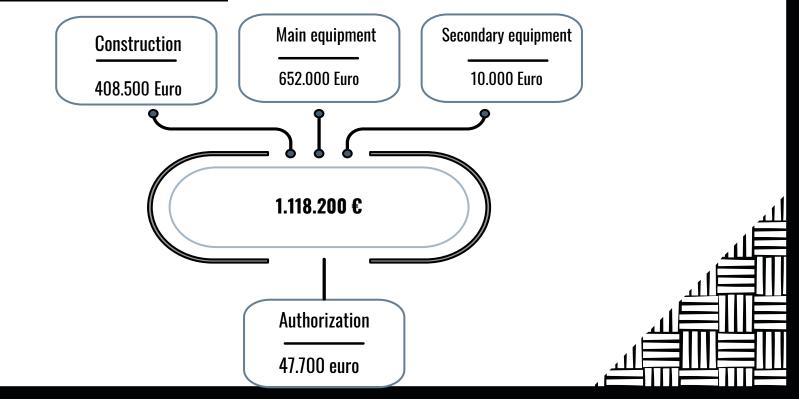


- → Flexible rotor pump
- → Storms and storms
- → Cooling systems
- → Aerotherms
- → Nitrogen and steam installation
- → Box pallet
- → Electric lysis
- → Compressor
- → Filter pumps
- → Gyro pallets



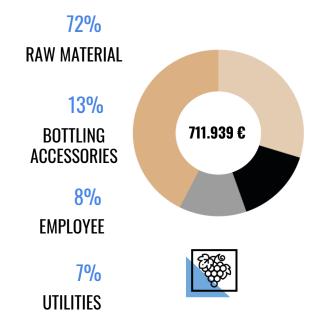


# The initial investment for the winery

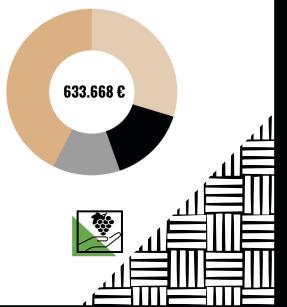


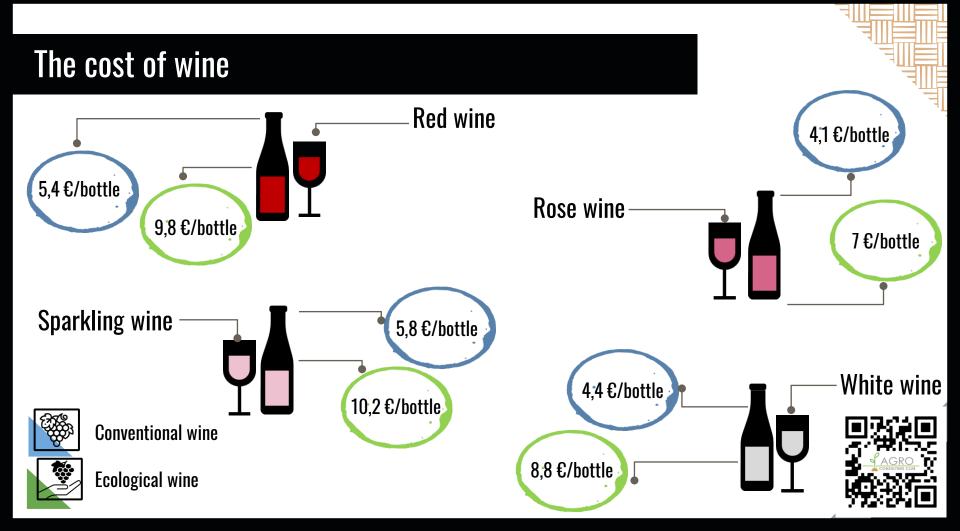
### **Annual Expenses**











#### **Conclusions**



Possibility of expanding of the processing line from 180 tons annually to 240 tons annually



Small differences between the production of ecological and conventional wines



Fermentation treatments and yeasts are different for every types of wine and winemaker



High price volatility, so it is difficult to estimate in the long term





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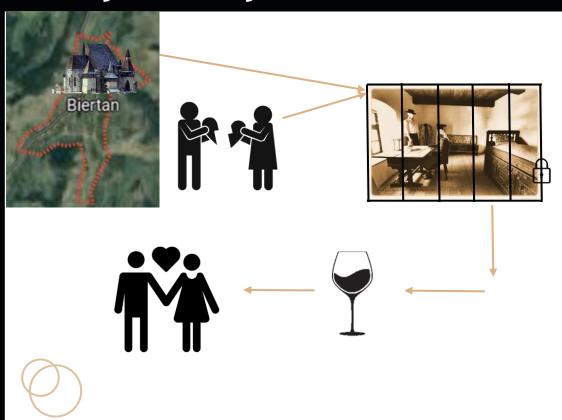
O1 Story of winery

Marketing strategy

Sells channel



# **Story of winery**





#### story of winery





### Marketing strategy

QUALITY PRODUCTS

LOYAL CUSTOMERS PROMOTIONS

WINE FESTIVALS PARTICIPATION

**SOCIAL MEDIA** 

**GOOGLE ADS** 

WEBSITE

INFLUENCER MARKETING



We will focus on the quality of products and will try to make ourselves known through different channels

#### **Festivals**





Participation to wine festivals brings visibility and awareness



### Competitions



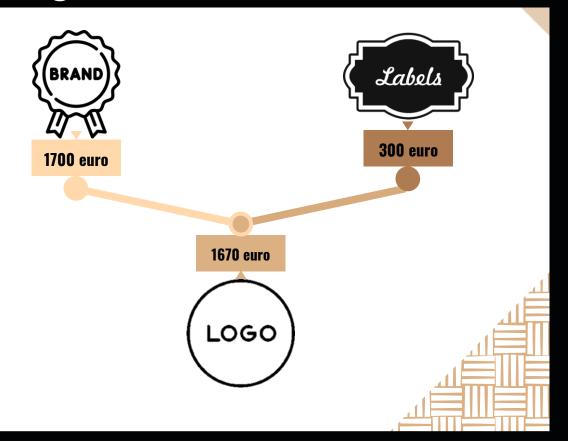






The participation to wine competitions adds an extra proof of quality to customers

# **Branding & Labels**



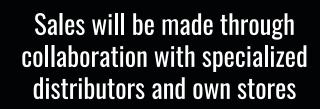
The branding, LOGO, labels and marketing will be made by specialists, each operation having different costs.

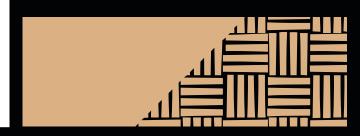
Appendix 4.1



### Go-to Market









#### **Distributors**



Head office: Satu-Mare



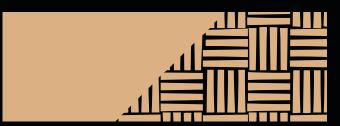
TeWine

Distributors have a larger sales area, thus reaching customer faster.



Head office: Bucharest Head office: Bucharest





### Potential partners

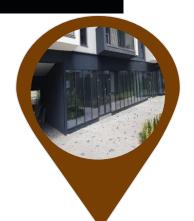


#### **Location for the store**



#### HABERMANN MARKT

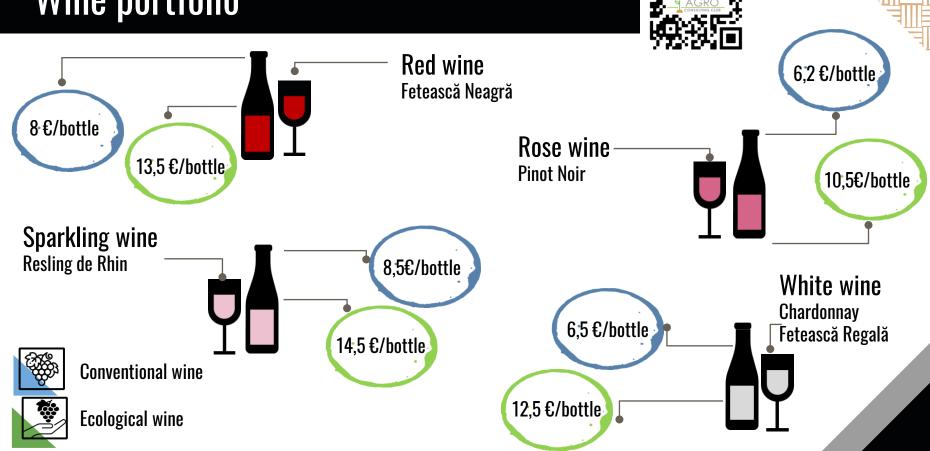
- In the center of Sibiu
- Existence of parking space
- Large flow of people
- Price: started 15euro/mp



#### MĂRĂȘTI, CLUJ-NAPOCA

- On the main street
- Existence of parking
- 83 square meters
- Price: 950 euro/ month

### Wine portfolio



### **Annual Expenses**



**87.17%** BOTTLES

3.64% MAINTENANCE MARKETING WINE TASTING

3.02% RENT UTILITIES

5.69%

**EMPLOYEE** 

0.49%

**FESTIVALS** 





83.55%

**BOTTLES** 

4.85%

MAINTENANCE MARKETING WINE TASTING

4.03% RENT UTILITIES

7.58%

**EMPLOYEE** 

0.65%

**FESTIVALS** 



#### Conclusion

To sell through several channel is opportune for our entry into the wine market

At the present moment organic wine is more successful in the nordic EU countries

The prices of wine are high due to the production costs for a high end wine







- 2. Large differences in production volume
- 3. Efficiency of expenses in the ecological system

