Product 7 – Standard practical tasks

Field: Viticulture

Task: microscope examination

Examine under the microscope the given plant sections and identify the cane and root sections.

Task: grafting

You get one rootstock of 120 cm length. Prepare it for grafting with a minimum length of 30 cm. Then prepare the scion you got.
Carry out the Omega – mechanised grafting in a proper way.

Task: grafting

Carry out the omega–mechanised grafting according to the sample shown!

Task: planting

A new vineyard is to be planted.
For this you plant one vine at the row that is shown to you in the vineyard.

Task: planting

Plant the 3 vines using the water spear in the marked row, using a space within the row of 1 m.

Task: soil sample

Use the Puerckhauer tool to take a soil sample that may be used for nutrient analysis.
Put the soil in bags, close and label it.
How many samples per hectare should be taken to achieve a representative average of the vineyard?

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Task: pruning
Name the training system and carry out a long spur pruning on the vine. Per vine, 10 buds are required. One fruit bearing cane and one substitute spur per vine are required.
You do not cut the spurs – you use clothes-pegs instead.

Task: pruning
Name the training system. Perform pruning using clothes, consider also the basal bud.
Using two pegs, point out the cutting points on two canes, each carrying 7 buds.
Using one peg, point out the cutting point in order to have a spur with 2 buds below the selected canes

Task: pruning
Carry out the pruning on the given vine. Leave one cane and a renewal spur on the vine. Training system to be developed: Goblet.

Task: pruning
Two vines should be pruned with 4 buds/m² and a growing area of 2.5 m2/vine.
Carry out single cane pruning on the training system that is presented to you using clips instead of cuts. Remove all side canes and tendrils.
Finally the vine should be ready for bending.
If necessary one spur should be left.

Task: judging diseases
Which of these 8 sections shows
a) Esca Vine Decline symptoms
b) Eutypa Dieback?

Task: trunk topping
Which of the following kinds of trunk topping is the most proper way to recover vines affected by Esca Vine Decline?

Task: handling pesticides
Prepare a spray solution and handle the pesticide in a proper way, regarding safety requirements. First calculate the amount of pesticide you need, then mix the solution.

a) 0.5% spray solution for a 400 litres sprayer tank

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Amount: _____ litres of pesticide

b) For a 250 litres sprayer tank (1 litre per hectare pesticide, 1000 litres per hectare solution)

Amount: _____ litres of pesticide

c) For a 800 litres sprayer tank (1.2 litres per hectare pesticide, 1000 litres per hectare solution)

Amount: _____ litres of pesticide

d) 0.3% spray solution for 7.000 m² vineyard (1000 litres per hectare solution)

Amount: _____ litres of pesticide

Task: spraying

Prepare the tractor and the sprayer and carry out the treatment of the marked vineyards rows.

Task: spraying

Set the nozzles of the sprayer for Guyot trained vines of 1 m cane length.

Task: irrigating

Identify the main components of the irrigation plant by placing the prepared cards to the proper component.
Then prepare the fertilization equipment for the following requirements:

- Dosage: 3 litres of fertilizer per hectare
- Irrigation time: 1 hour
- Area: 1,000 m² vineyard
- Fertilizer tank volume: 50 litres

Finally, plan an irrigation applying the fertilizer according to the following data:

- 1 day per week (Monday)
- Sector 1
- 1 hour of irrigation
- 30 minutes of fertilization

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Product 7 – Standard practical tasks

Field: Oenolgy

1. Laboratory

Task: acidity

Determine the total acidity with sodium hydroxide n/3 lye using 25 ml wine.

Answer: _____ grams per litre

Task: acidity

Select the more appropriated end-point indicator for the determination of the total acidity of the wine, by a titration with NaHO N/10.

○ Phenolphthalein ○ Methyl orange ○ Methylene blue

Task: acidity

Solve the problem:
A sample of 10 ml of white wine was diluted to 10 ml with water. The solution is titrated with 22,66 ml NaOH 0,05412 M using an appropriated indicator. Calculate the total acidity of the wine as grams of tartaric acid per 100ml of wine ($H_2C_4H_4O_6$ Pm = 150). Observe that the final point of the indicator occurs when the two acid hydrogen were considered.

Answer: _____ grams per 100 ml

Task: acidity

Determine the total acidity of the wine using N/10 NaOH solution.
What indicator is used?

○ litmus ○ methylene blue ○ bromothymol blue

Answer: _____ grams per 100 ml

Based on the measurement, the total acidity is _____ g/l for tartaric acid.

Task: alcohol content

Assemble the distillation equipment for determining the alcoholic degree.

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Task: alcohol content

Determination of the alcoholic grade by ebuliometry:
The ebullition temperature of the water is 100, 2 ºC and the ebullition temperature of the wine is 92,9 ºC
Use the Dujardin-Salleron disc to obtain the alcoholic grade of the wine.

Answer: _____ % alcohol

Task: alcohol content

The alcoholic grade of the wine can be determined by aerometry.
In this case the determination work needs a prior distillation of the wine.
Which equipment (A, B or C) should be used for this propose?

○ A ○ B ○ C

Task: pH

Classify the following red wine samples according to their pH value from highest to lowest pH, using the pH-meter.

	Sample	**pH-value**
1. Highest pH:	_____	_____
2. 2nd-highest pH:	_____	_____
3. 2nd-lowest pH:	_____	_____
4. Lowest pH:	_____	_____

Task: pH

Find the wine pH, using the pH meter (the pH meter was previously calibrated).
Make two pH determinations (maximum difference = 0,03)

The wine pH value is _____

Task: pH

Determine the pH-value of the must.

The pH value is _____

Task: instruments

Choose for the sample two adequate volumetric indicators to observe the final point.

Task: SO_2

Classify the two wine samples according to their SO_2 content from highest to SO_2, using the volumetric method.

	Sample	**pH-value**
1. Highest SO_2:	_____	_____

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2. Lowest SO_2: _____ _____

Task: SO_2

Determine the free SO_2 of the white wine sample, using the iodine N/50 as titrant. Select the appropriated end-point indicator for this titration!

○ A ○ B ○ C

The volume of iodine N/50 used was _____ ml

Take a look at the tables and report the free SO_2 of the wine in mg/L

_____ mg/L

Knowing that the total SO_2 is 126 mg/L, calculate the combined SO_2!

_____ mg/L

Task: SO_2

Determine the amount of free sulphur dioxide with iodine N/40 using 20 ml wine.

Answer: _____ mg per litre

Task: SO_2

Determine the free sulphur dioxide (SO_2) content of the given white wine.
What solution is used for the task?

○ potassium bi-iodate ○ NaOH ○ potassium iodide

Answer: _____ mg per litre

The used amount of the standard alkaline solution is _____ cm^3.

Based on this, the free sulphurous acid content of the wine is _____ mg/l SO_2.

Task: SO_2

Determine the amount of free sulphur dioxide with Titrovin-equipment.

Answer: _____ mg per litre

Task: sugar content

Classify the must samples according to their °Oechsle from highest to lowest degree, using the certified must spindle.

	Sample	**°Oe**
1. Highest °Oe:	_____	_____
2. 2nd-highest °Oe:	_____	_____
3. 2nd-lowest °Oe:	_____	_____
4. Lowest °Oe:	_____	_____

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Task: sugar content

Determine the sugar content in the must with the must spindle using °Oechsle.

Answer: _____ ° Oechsle

Calculate the expected alcohol content of the given must.

Answer: _____ % alcohol

Task: densitiy

Measure the density of the white wine sample at a temperature of 20 ºC
Select the appropriated densimeter!

○ densimeter A ○ densimeter B

Answer: _____

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2. Cellar

Task: fining
Name the three wine agents:

A _____

B _____

C _____

Task: fining
Prepare the given amount of fining agents adequately for fining!

Task: wine additives
Recognise the wine additives and name them on the list below (A, B, C).

Potassium metabisulfite _____

Sulphur _____

Activated carbon _____

Citric acid _____

Ascorbic acid _____

Silica _____

Wine yeast _____

Yeast nutrient _____

Liquid gelatine _____

Nacalit _____

Task: racking
Carry out the racking of wine from the given barrique cask to the barrel!

- Build up the line with the pump
- Pump the wine from the barrique cask to the barrel
- Empty the line and disconnect the pump

Task: filtration
Pack the cellulose sheet filter properly! Use 4 sheets.

Task: clarifying
Carry out a clarifying process using gelatine

- Quantity of wine: 95 litres
- Dose: 5 grams/Hl

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Task: pumping
Move the wine from tank A to tank B without ventilation.

Task: disinfection
This tank has a disinfectant solution inside.
Action 1 –Place in a suitable way the “washing ball” in this tank
Action 2 – Make the connection between the hoses, the pump and the tank
Action 3 – Link the pump to the electric power
Action 4 – Make sure that you made this in correct position
Action 5 – Place the cleaning solution into circulation with the pump

Task: disinfection
Use the foam cleaner!

- Make 15 litres of 1% solution of the given disinfectant (calculate and measure it)
- Fill the machine with the solution and put it into operation with the helpf of a compressor.
- Clean the given equipment!

Task: Bottling
Bottle 10 bottles of wine by using the vacuum bottle filler and membrane filters!

- Adjust the fill-level, fill the bottles, seal them and put capsules on
- Empty the filler and rinse with water

Task: Yeast
You have 2 hl of must. Prepare the yeast starter by using 25 gr / hl of yeast. The inoculation should be 1%.

- Calculate and measure the necessary amount of yeast
- Hydrate the yeast
- Prepare the solution
- How many degrees Celsius can be the difference between the temperature of the yeast solution and the must?

  ○ max. 8 °C ○ > 15 °C ○ > 10 °C

Task: Sampling
Take a sample of the tank with the hose and label it.

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Product 7 – Standard practical tasks

Field: Wine sensory

1. Triangle test

1.1. Which two white wines are identical? (tick the two identical wines)

○ A ○ B ○ C

1.2. Which two red wines are identical? (tick the two identical wines)

○ A ○ B ○ C

2. Sequence test

2.1. Put the three wines in order according to their acidity.
(1 = lowest acidity, 2 = medium acidity, 3 = highest acidity)

_____ A _____ B _____ C

2.2. Put the three wines in order according to their content of unfermented sugar.
(1 = lowest sugar content, 2 = medium sugar content, 3 = highest sugar content)

_____ A _____ B _____ C

2.3. Put the three wines in order according to their age.
(1 = youngest, 2 = medium age, 3 = oldest wine)

_____ A _____ B _____ C

2.4. Put the three Port wines in order according to their age.
(1 = youngest, 2 = medium age, 3 = oldest wine)

_____ A _____ B _____ C

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2.5. Put the three wines in order according to their age.
(1 = 1 year, 2 = 5 years, 3 = 10 years)

_____ A _____ B _____ C

2.6. Put the three wines in order according to their SO_2 content.
(1 = highest SO_2, 2 = medium, 3 = lowest SO_2 content)

_____ A _____ B _____ C

2.7. Assess the 3 wine samples according to the following characteristics. Put the letter of the 3 sample into each line!

	Lowest	*medium*	*highest*
Acidity	_____	_____	_____
Bitter	_____	_____	_____
Sweet	_____	_____	_____
Salty	_____	_____	_____

3. Wine faults

3.1. Recognise the wine faults in the three wines. Match one fault to each wine.
Faults: *volatile acidity* *SO_2* *Oxidation*

A _____

B _____

C _____

3.2. Recognise the wine faults in the five wines. Match one fault to each wine.

Possible faults:	*Bitterness*	*SO_2*
	Butyric acid	*Oxidation*
	Vinegar taste	*Filter taste*
	Mouldy taste	*Cork taste*
	Brettanomyces	

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A _____

B _____

C _____

D _____

E _____

3.3. Recognise the wine faults in the five wines. Match one fault to each wine.

Possible faults:	*Filter taste*	*Vinegar taste*
	Butyric acid	*Brettanomyces*
	Mouldy taste	*Bitterness*
	SO2	*Cork taste*
	Oxidation	*H2S*

A _____

B _____

C _____

D _____

E _____

4. Wine aromas

4.1. Recognise the four aromas. Write the aroma next to each letter.

Possible aromas:	*Banana*	*Orange*
	Lemon	*Peach*
	Apple	*Strawberry*
	Raspberry	*Black currant*
	Cherry	

A _____

B _____

C _____

D _____

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4.2. Recognise the five aromas. Write the aroma next to each letter. You can only smell, not taste!

Possible aromas:	*Vanilla*	*Honey*
	Litchi	*Almond*
	Lemon	*Clove*
	Green peppers	*Cherry*
	Apple	*Orange*

A _____

B _____

C _____

D _____

E _____

5. Varieties

5.1. Recognise the three white wine varieties. Write the variety next to the letter.
Varieties: Sauvignon Blanc – Chardonnay – Rheinriesling

A _____

B _____

C _____

5.2. Recognise the three white wine varieties. Write the variety next to the letter.
Varieties: Traminer – Trebbiano – Moscato

A _____

B _____

C _____

5.3. Recognise the three red wine varieties. Write the variety next to the letter.
Varieties: Zweigelt – Cabernet Sauvignon – Pinot Noir

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A _____

B _____

C _____

5.4. Recognise the three red wine varieties. Write the variety next to the letter.
Varieties: Merlot – Cabernet Sauvignon – Syrah

A _____

B _____

C _____

5.5. Recognise the three red wine varieties. Write the variety next to the letter.
Varieties: Grenache – Cabernet Franc – Sangiovese

A _____

B _____

C _____

6. Wine growing regions

6.1. Allocate the correct wine growing region to each wine.

Possible regions:	*Bordeaux*	*Navarra*
	Baden-Württemberg	*Chianti*
	Côtes du Rhone	*Burgenland*
	Rioja	

A _____

B _____

C _____

6.2. Allocate the correct wine growing region to each wine.

Possible regions:	*Bordeaux*	*Chianti*
	La Mancha	*Baden*
	Burgenland	*Villany*

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A _____

B _____

C _____

7. Wine style

7.1. Which of the two wines is aged in wood barrels? Tick one!

○ A ○ B

7.2. Which of the wine samples are aged in wood barrels?

○ A ○ B ○ C ○ D

7.3. Which of the wine samples is “international style” of a wide-spread variety?

○ A ○ B ○ C

7.4. Which of the two wines is younger?

○ A ○ B

8. Sparkling wine

8.1. Which grape variety was used to make all 3 sparkling wines? Tick one!

○ Chardonnay ○ Pinot blanc ○ Pinot Meuniér

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