EXPEDITING QUALITY WINES TO MARKET

Lauren Barrett, Winemaking Specialist

January 21, 2021

Webinar Formalities

- This webinar is being recorded and will be posted on our website.
- Please refrain from using the chat box during the presentation, there will be a 15-minute Q & A at the end of the presentation. Post your questions in the designated chat box.
- You can toggle the chat box closed as well if its distracting.

Outline

- Wine Production Calendar and Overview
  - White and Rosé Winemaking Process
  - Red Winemaking Process
- Key Stages and Considerations For Accelerating Wines to Market
  - Expediting White and Rosé Winemaking
  - Expediting Red Winemaking
- Tools for Enhancing Sensory
  - Oak Alternatives and Enological Tannins
  - Yeast and Acacia Polysaccharides
  - Stabilization and Bottling Timeline

Wine Production Calendar and Overview

Northern Hemisphere Wine Production Calendar and Overview

2020

JANUARY-MARCH *Q1*

- 2019 Aged white and red wine maturation
- 2019 Early white, rosé and red wine clarification, blending and stabilization
- 2019 Early white, rosé and red wine botting

APRIL-JUNE *Q2*

- Continued 2019 early white, rosé and red wine botting
- 2019 Aged white and red wines, blending and stabilization
- 2020 Harvest preparations

JULY-SEPTEMBER *Q3*

- 2019 Aged white and red wine bottling
- 2020 Harvest preparations
- 2020 Harvest early ripening grape varieties

OCTOBER-DECEMBER *Q4*

- Harvest
- Alcoholic fermentation
- Malolactic fermentation
- 2020 Clarification, racking, stabilization

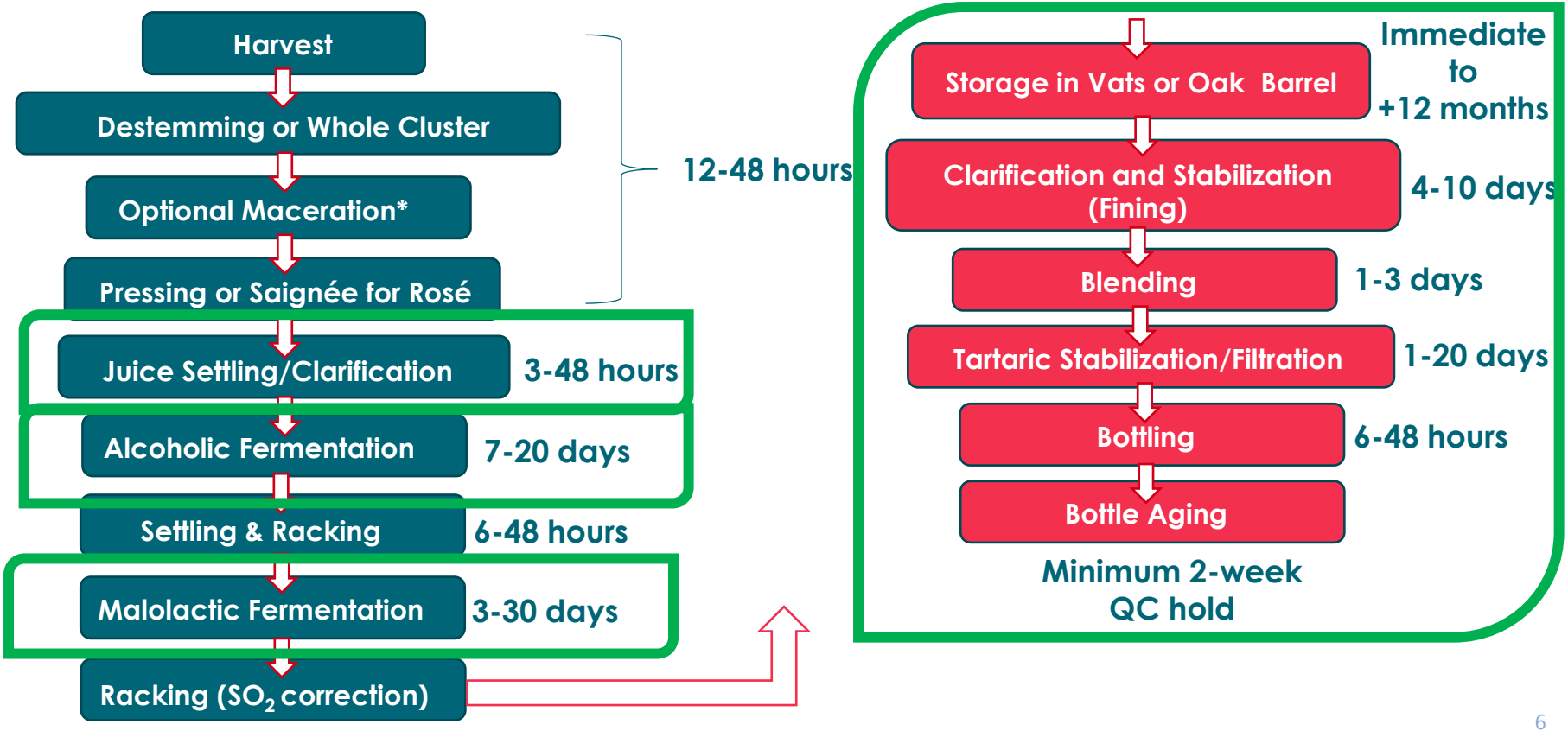
Weeks -6 months

7-18 months

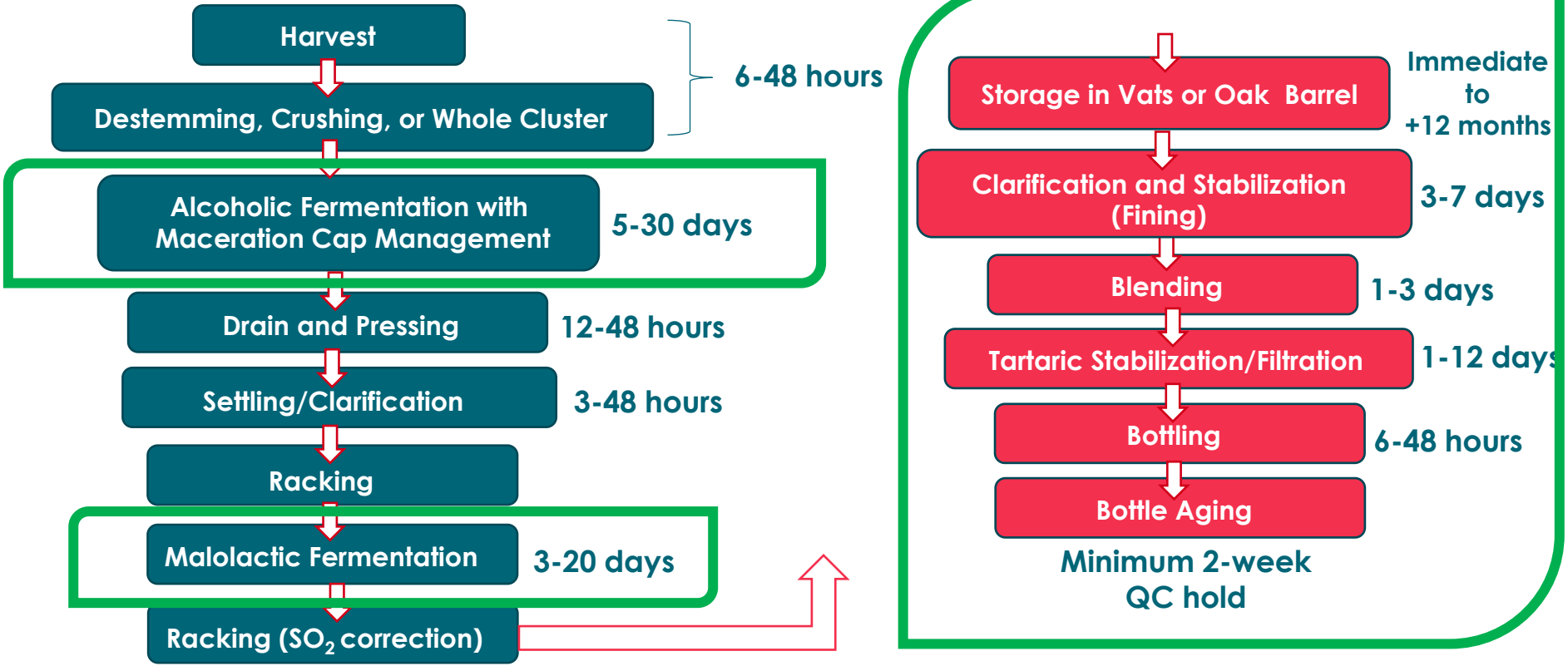
18-24 months

2021

White and Rosé Winemaking Process



Red Winemaking Process

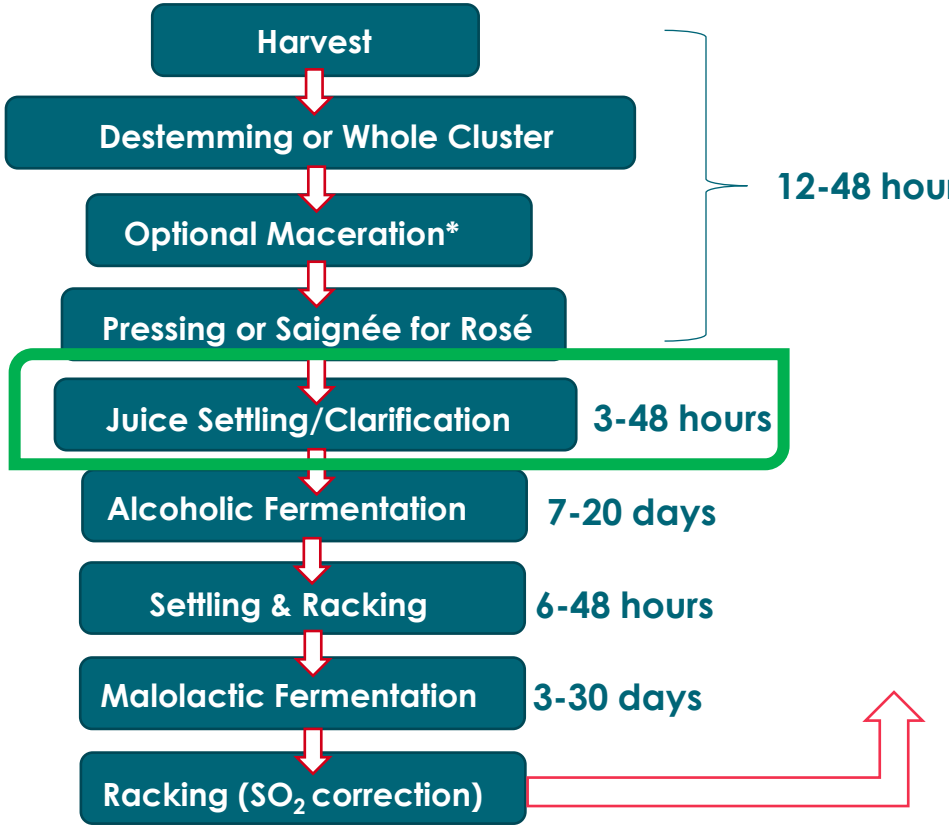


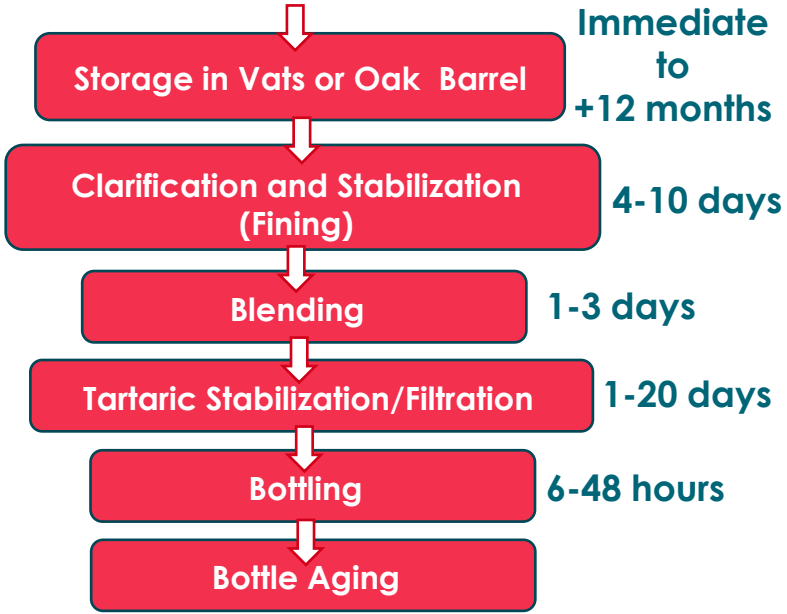
enartis

Expediting White and Rosé Wines to Market

Key Stages and Considerations

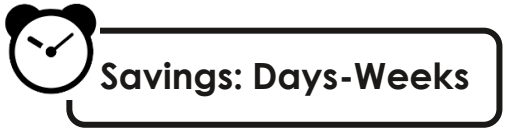
White and Rosé Winemaking Process



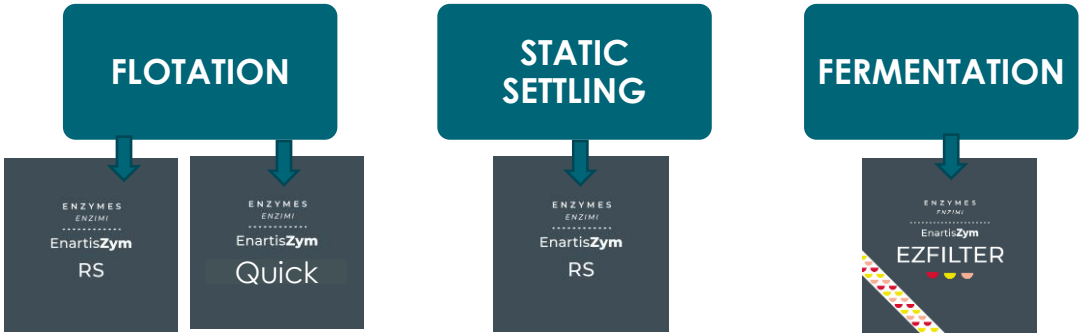


Juice Settling Enzymes: Pectinases, Protease and Betaglucanase

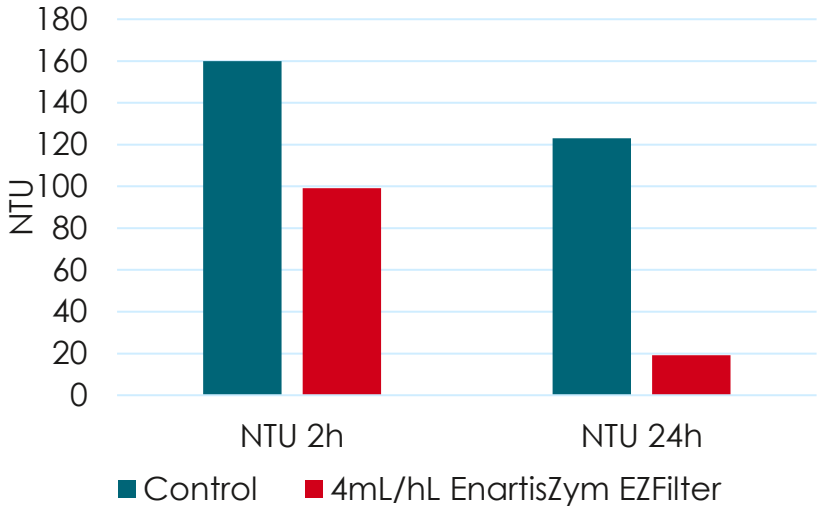
- **Why use Enzymes?**
  - Decrease juice viscosity and increased settling
  - Reduction in filtration time by up to 30%
  - Up to 15% more juice yield
  - Improved fining, clarification and filtration efficiency
  - Expedited yeast autolysis and mannoprotein release

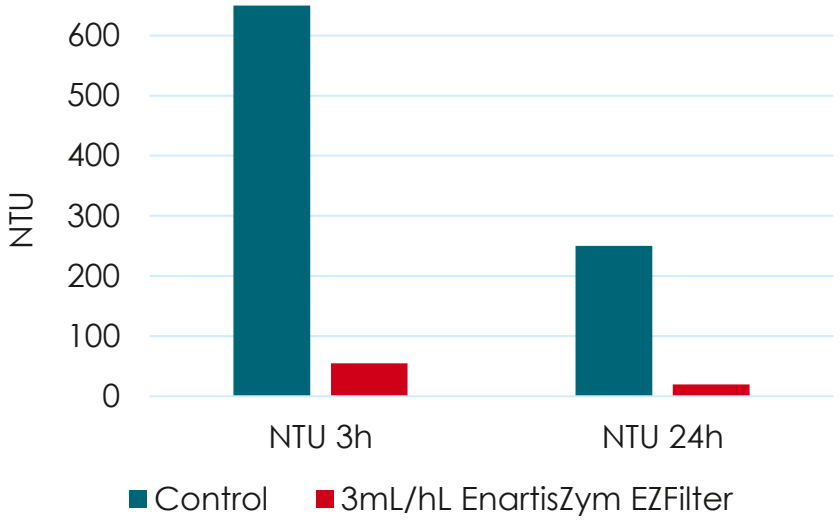


- Pectolytic enzyme addition of 2-4 g/hL at the juice phase allows for **optimal enzyme activity**
  - Decrease static settling time to **2-6 hours vs +12 hours.**



Increasing Static Settling and Clarification Speed





Moscato

Difficult Juice

Rich in pectin and glucan

Chardonnay

"Healthy" Juice

Low pectin and glucan

Juice Settling and Clarification: Fining

- **Why applying fining in the juice stage?**
  - Increase settling and clarification efficiency
  - Proactive removal of detrimental juice constituents
  - Removal of unstable proteins
  - Improved aromatic cleanliness and wine quality

- **Options for Clarification Fining:**
  - Bentonite
  - Silica
  - Animal/Fish Proteins: Isinglass, casein, gelatin
  - Plant Proteins: Potato and pea proteins
  - Polymers: Chitosan, PVI/PVP and PVPP
  - Blends

Savings: Days-Weeks

FINING AGENTS
CHIARIFICANTI
CLARIL SP

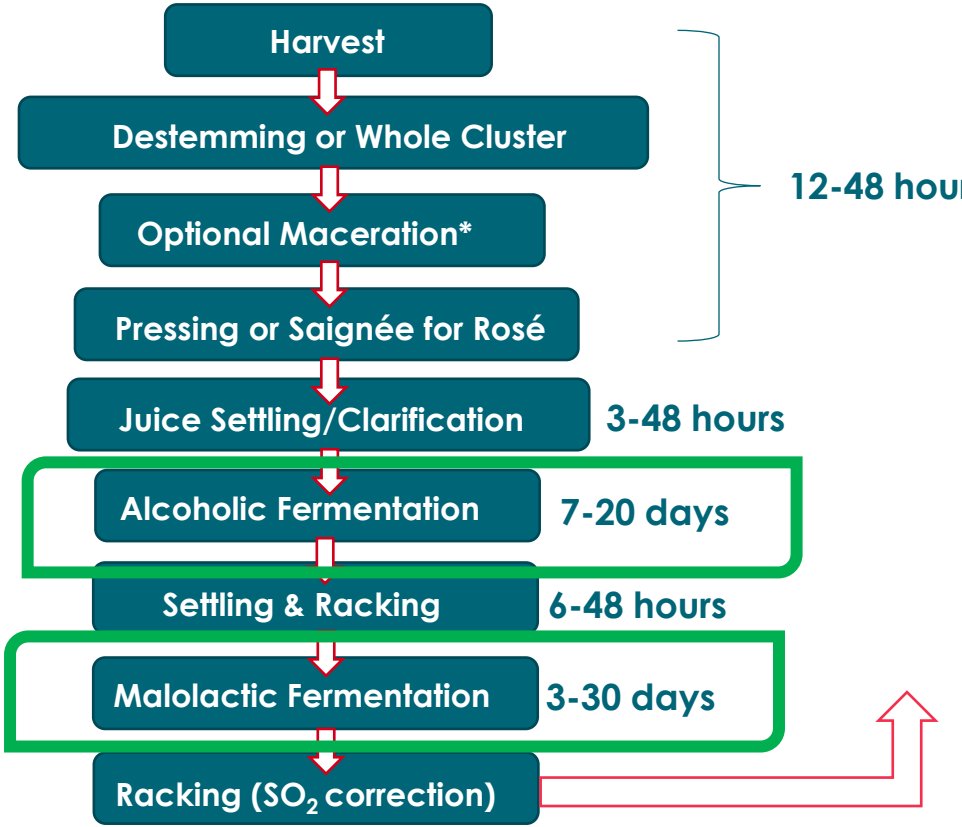
Bentonite, PVPP, Caseinate and Silica

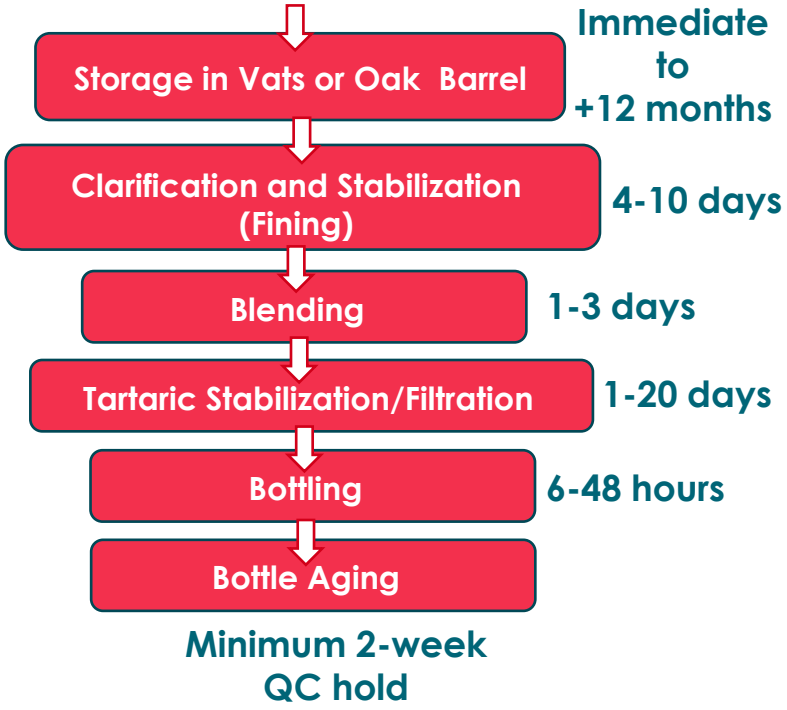
FINING AGENTS
CHIARIFICANTI
CLARIL AF

Bentonite, PVPP, plant protein and Silica

Learn more in our past webinars Proactive Protein Stabilization, and Rapid Clarification: Tips and Tools for Clarifying Juice

White and Rosé Winemaking Process





Alcoholic Fermentation

- **Spontaneous vs. Pure Strain Selection**
  - Pure strain selection reduces the risk of stuck fermentations
  - Decreases associated time with stuck fermentation off-flavor remediation

Savings: Weeks-Months

- **Strain Selection For Sensory and Reliability**
  - High glycerol producer→ Increased mouthfeel and lower ethanol
  - Deacidification→ high malic consumers
  - High polysaccharide production → Increase mouthfeel and colloid stability
  - Enzyme expression→ Aroma production

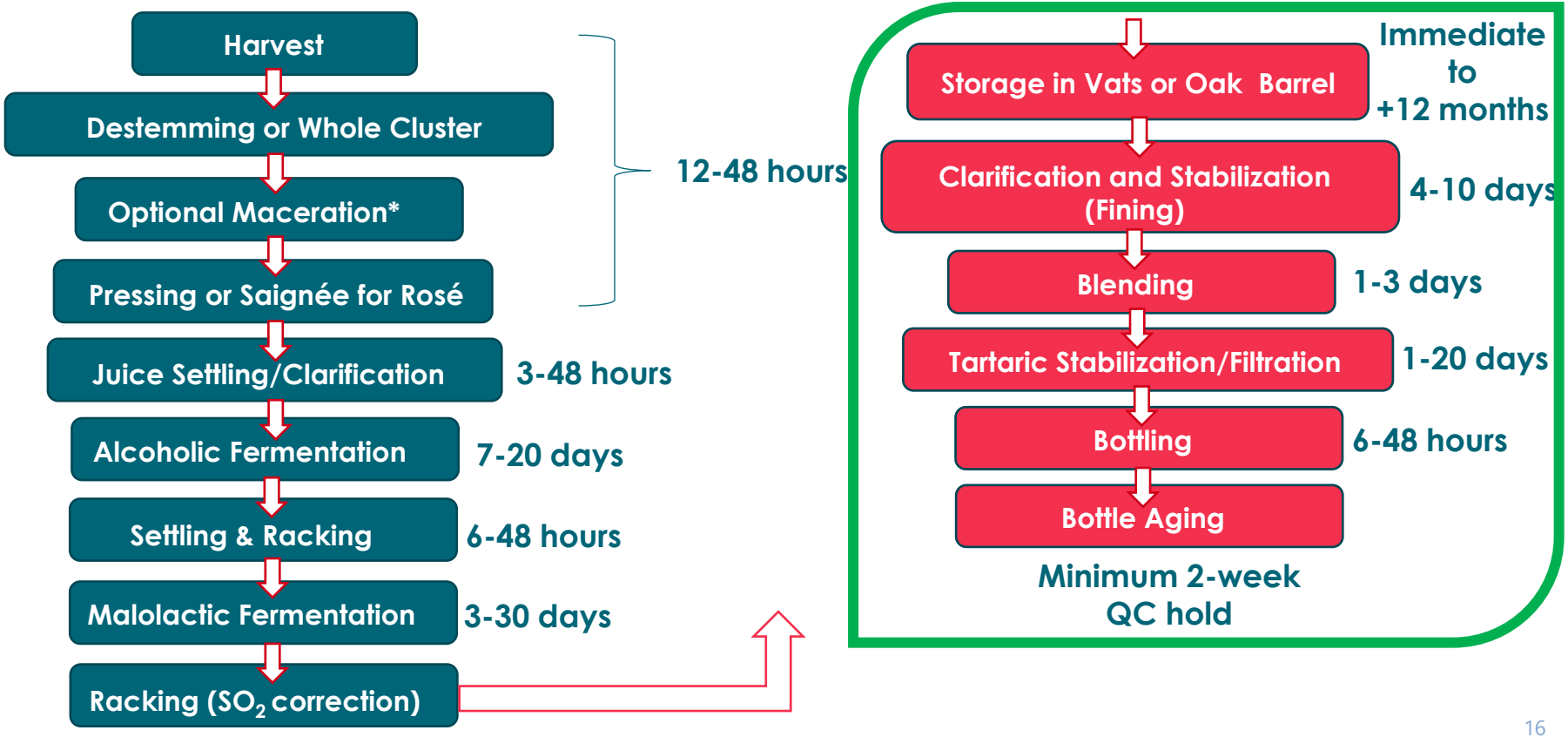
AIM TO BOTTLE WITHIN 2 MONTHS OF AFTER COMPLETION OF FERMENTATION

Malolactic Fermentation

- **Spontaneous vs. Pure Strain Selection**
  - Reduce the risk of sluggish/stuck malolactic fermentations
  - Reduce associated time and cost of remediation
  - Reduce the risk of secondary spoilage
  - Control wine sensory modulation: Less diacetyls, increase fruitiness and freshness.

- **Direct Inoculation Strategies**
  - Inoculation after alcoholic fermentation
  - Co-inoculation:

White and Rosé Winemaking Process



Wine Stabilization and Fining

- **Define Fining Objective and Perform Bench Trial**
  - Reduce the risk of over fining and associated added time
  - Define settling time range and treatment time
- **Select Complex Fining Agents With Multiple Activates**
  - Reduce the number of fining treatments and related treatment time

Savings: Days-Weeks

- **Tips for Increasing Efficiency and Accelerating Fining Treatment**
  - Test your wines for glucans and pectin, treat with enzyme if present
  - In general, allow one week for treatment and settling
  - Follow the fining agent TDS
    - Temperature
    - Proper mixing
    - Racking off

Vegan Fining Agent With Plant Protein, Chitosan and Bentonite

Tartrate Stabilization

- **Subtractive Strategies**:
  - Static Cold stabilization
  - Cold Stabilization with seeding
  - Electrodialysis and Ion Exchange

Oxidation Risk

- **Additive Strategies**:
  - Zenith®: Potassium polyaspartate (KPA)
  - Cellogum LV20: Carboxymethyl cellulose (CMC)
  - Citrogum: Tartrate stabilizing gum arabic

Solution of KPA for effective tartrate stabilization for white and rosé wines.

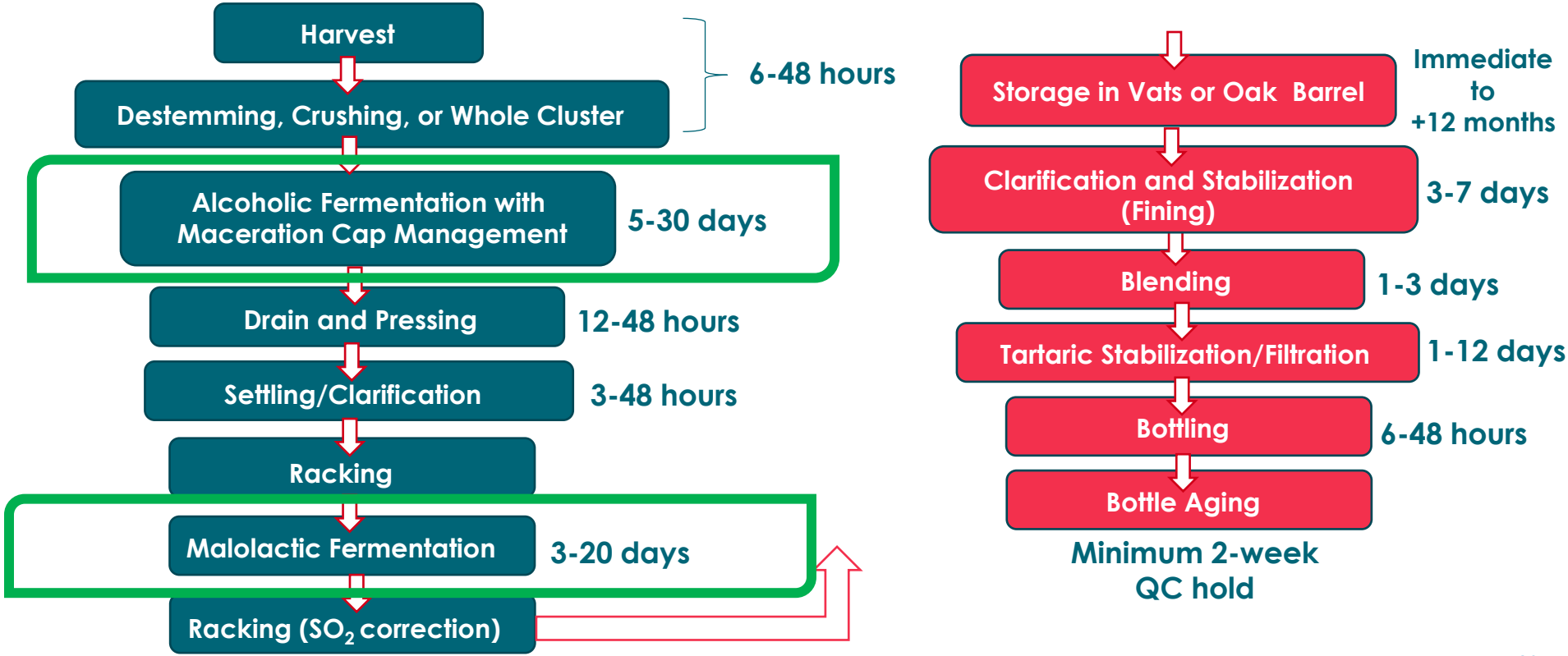
Savings: Weeks-Months

Learn more in our previous webinar Zenith: The Revolution in Tartrate Stabilization

Expediting Red Wines to Market

Key Stages and Considerations

Red Winemaking Process

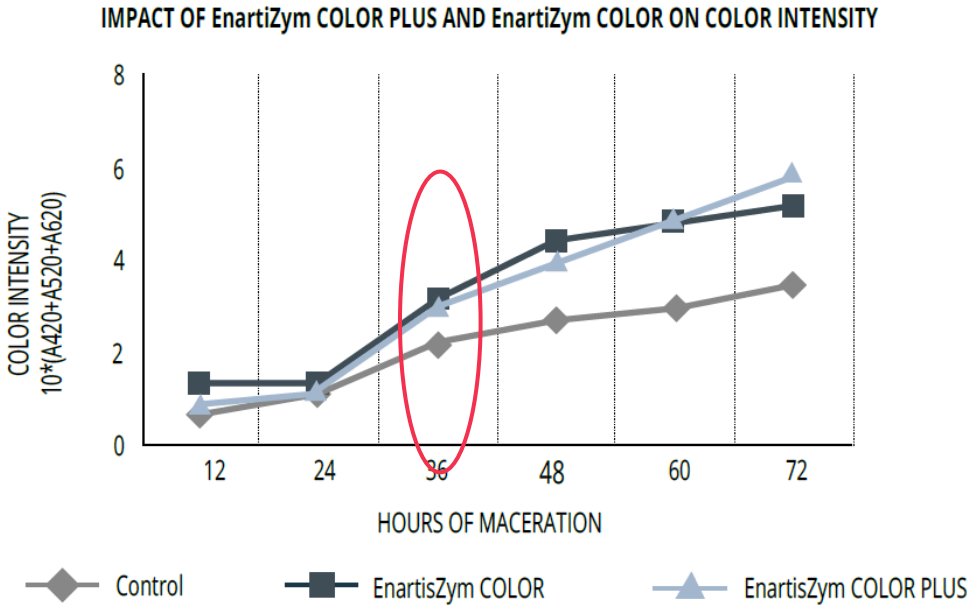


Maceration and Alcoholic Fermentation

- **Maceration Enzymes**
  - Improve phenolic extraction
  - Increased filterability

Savings: Days-Weeks

- **Yeast Strain Selection For Sensory and Reliability**
  - Increase polyphenols
  - Resistance to high temperature
  - Low nutrient requirements
  - Co-inoculation compatibility



EnartisZym COLOR and EnartisZym COLOR PLUS increased color extraction speed, color intensity and stability.

Maceration, Draining and Running off

- **Cap Management and Color Co-Pigmentation**
  - Shorter maceration window limits tannin extraction
  - Supplement with co-pigmentation tannins for protecting and stabilizing pigments

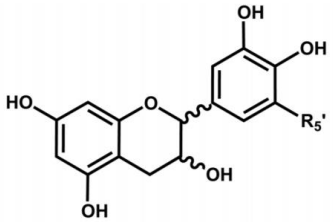
- **Draining prior to end of AF (~5-4°Brix)**
  - Short vatting from 3-4 days
  - Early drinking light, fruit driven wines

Savings: Days-Weeks

- **Draining at sugar dryness**
  - Vatting for ~8 days
  - Early drinking premium wines

TANNINS
TANNINI
EnartisTan
XC

Mono-catechin and low MW tannins for co-pigmentation in young red wines



(+)-Catechin: R_5' = H; 2R, 3S
(-)-Catechin: R_5' = H; 2S, 3R
(-)-Epicatechin: R_5' = H; 2R, 3R
(+)-Epicatechin: R_5' = H; 2S, 3S
Gallocatechin: R_5' = OH

Malolactic Fermentation

- **Spontaneous vs. Pure Strain Selection**
  - Reduce the risk of sluggish/stuck malolactic fermentations Reduce associated time and cost of remediation
  - Reduce the risk of secondary spoilage
  - Control wine sensory modulation (color absorption and aroma)

- **Red Wine Co-inoculation Strain Pairs**

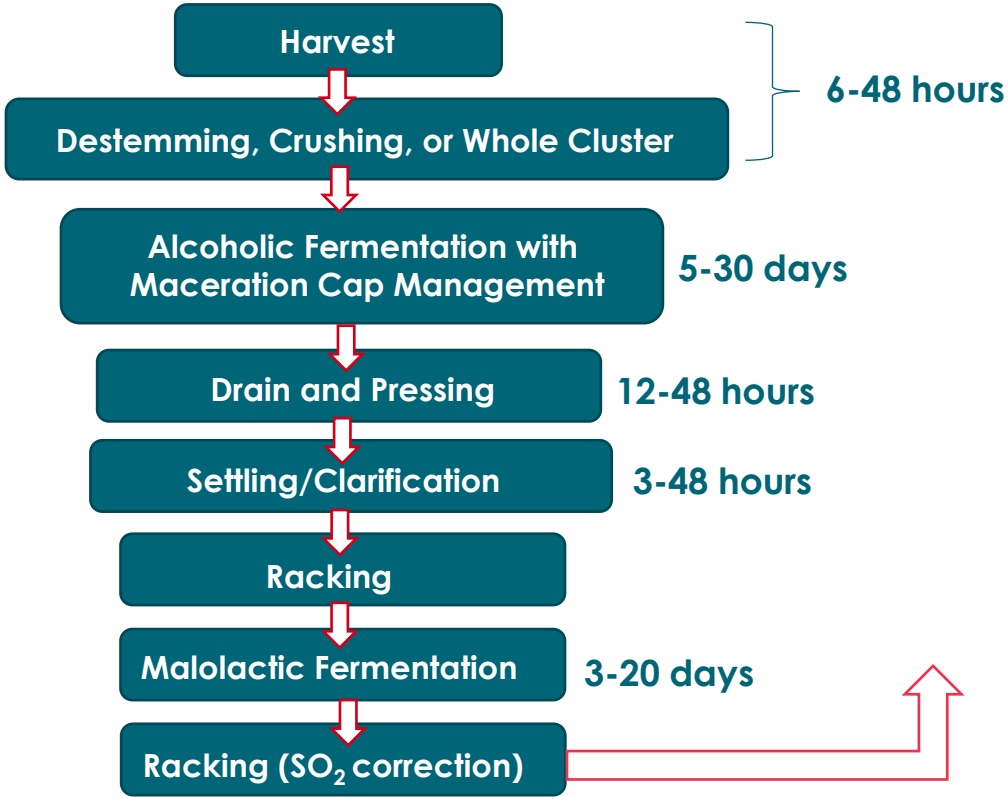
YEAST
LIEVITI
EnartisFerm
ES488

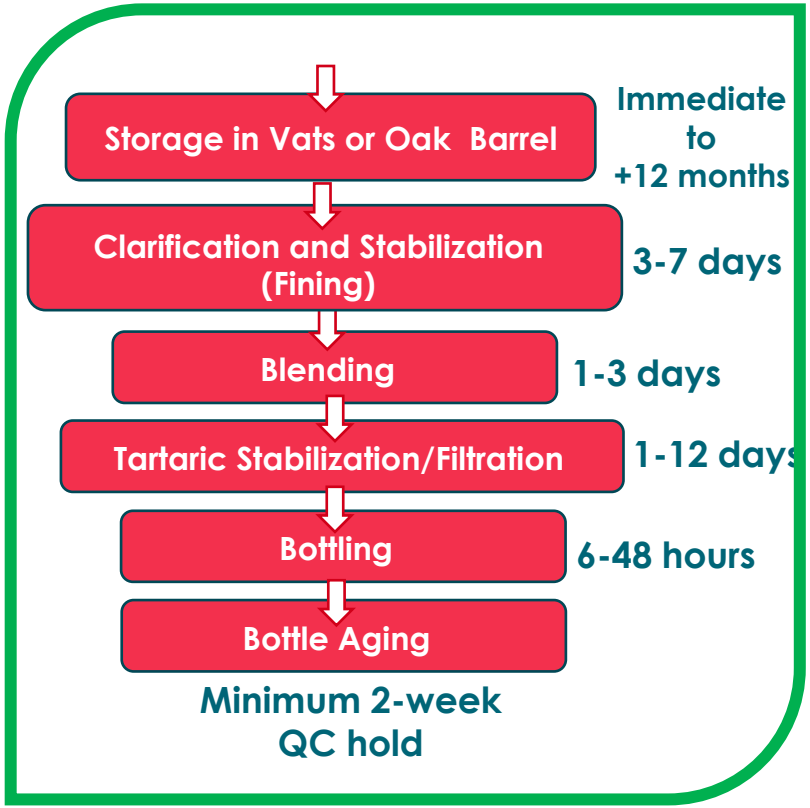
24-48 Hours

MALOLACTIC BACTERIA
BATTERI MALOLATTICI
EnartisML
UNO

Savings: Days-Weeks

Red Winemaking Process



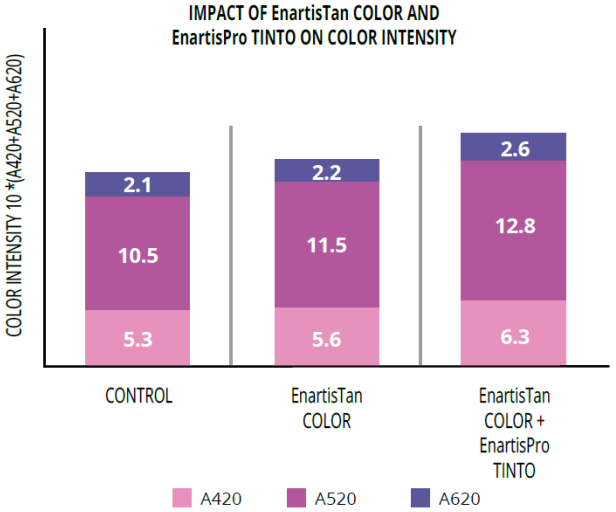


Red Wine Color Stabilization

- **Shorter maceration results in less condensed grape tannins**
  - Stabilize co-pigmented color complexes with tannins for condensation→ Increased stable color

Savings: Weeks-Months

- **Maintain a low redox potential to preserve fresh aroma and color**
  - Fine lees or inactivated yeasts
  - Gallic and untoasted oak tannins



The addition of EnartisTan COLOR at inoculation and EnartisPro TINTO at 1/3 fermentation improves color intensity and stability of wine. EnartisTan COLOR and EnartisPro TINTO have a synergistic effect on color intensity and stability. Data after MLF.

Red Wine Colloid Stabilization

- **Red Wine Fining Objective:** Remove unstable color compounds, improve sensory, attenuate bitterness/astringency

- **Perform Bench Trial**
  - Reduce the risk of over fining and associated added time
  - Define settling time range and treatment time

- **Use Multi-Action Fining Blends**

Bentonite, plant protein and chitosan

Savings: Days-Weeks

Tartrate Stabilization of Red Wines

- **Additive Strategies**:
  - Zenith® Color: Potassium polyaspartate (KPA) with filterable gum arabic
  - Citrogum: Tartrate stabilizing gum arabic
  - EnartisStab CLK+: Mannoproteins and KPA

Solution of KPA and arabic gum for effective tartrate stabilization of red and rosé wines.

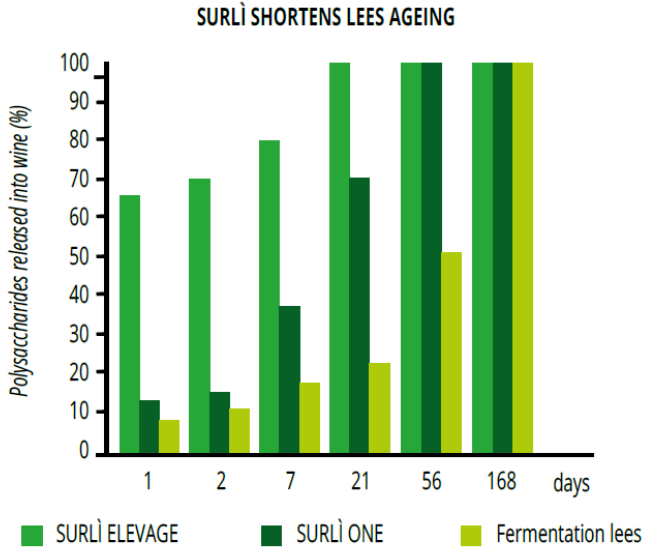
Savings: Weeks-Months

Learn more about in our previous webinar **Red Wine Stabilization with Zenith Color**

Tools for Enhancing Sensory

Yeast Polysaccharides

- **Natural yeast autolysis and aging can take from few months to years**
- **Exogenous yeast polysaccharides provide the mouthfeel and aroma retention observed with sur lie ageing without the associated time**
- **Additional Benefits:**
  - Reduce tartrate and protein instability
  - Decrease the perception of astringency
  - Retain wine aroma, improve sparkling wine foamability
  - Stimulate malolactic fermentation



SURLÌ ELEVAGE and SURLÌ ONE quickly increase the content of mannoproteins in wine and allow for shorter lees ageing.

Savings: Months

Yeast Polysaccharide Application Timeline

1/3 ALCOHOLIC FERMENTATION

MATURATION: 3-4 Weeks

PRE-BOTTLING: Days

POLYSACCHARIDES
POLISACCARIDI
EnartisPro R

POLYSACCHARIDES
POLISACCARIDI
EnartisPro ROUND

POLYSACCHARIDES
POLISACCARIDI
EnartisPro UNO

POLYSACCHARIDES
POLISACCARIDI
EnartisPro BLANCO

POLYSACCHARIDES
POLISACCARIDI
EnartisPro TINTO

POLYSACCHARIDES
POLISACCARIDI
EnartisPro FT

POLYSACCHARIDES
POLISACCARIDI
SURLÌ ELEVAGE

POLYSACCHARIDES
POLISACCARIDI
SURLÌ ONE

POLYSACCHARIDES
POLISACCARIDI
SURLÌ ROUND

POLYSACCHARIDES
POLISACCARIDI
SURLÌ VELVET

POLYSACCHARIDES
POLISACCARIDI
SURLÌ VELVET PLUS

Savings: Months

Red Wine Oak Ageing For Early Release

- **Objective**: Complex, oaky aroma with a soft, full body in a short amount of time.
  - **Polysaccharides** from Inactivated yeast gives the mouthfeel and aroma effect of sur lies ageing in just a few weeks.
  - **Oak Alternatives** can easily modify the oak profile
    - Increased surface, homogeneity and extractability save increase efficiency and save time

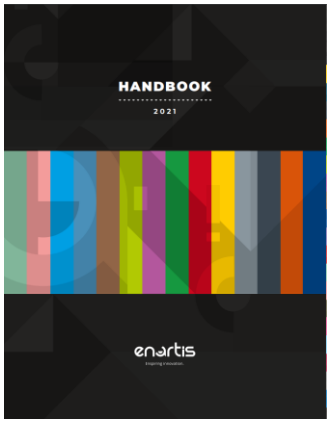
Oak Alternative	Dosage	Treatment Time
Oak Finishing Tannins	White: 0.5-8 g/hL Reds 0.5-20 g/hL	24 hours-1 week
Incanto Chips	White: 1-4 g/L Reds 1-6 g/L	4 weeks
Incanto Barrel Boost Mini-Staves	1 Barrel Boost is = 25% new oak	3-4 Months

Savings: Months-Years

Oak and Grape Derived Enological Tannins

TANNINS
TANNINI
EnartisTan
UVASPEED

- Attenuating Smoothness with out fining
- Fine tune wine structure and evolution



Enartis 2021 Handbook

TANNINS
TANNINI
EnartisTan
TOFFEE

TANNINS
TANNINI
EnartisTan
UNICO #1

- Increase the perception of sweetness
- Enhances oak barrel aromatics

TANNINS
TANNINI
EnartisTan
ELEVAGE

TANNINS
TANNINI
EnartisTan
SLI

TANNINS
TANNINI
EnartisTan
MAX NATURE

TANNINS
TANNINI
EnartisTan
CŒUR DE CHÊNE

TANNINS
TANNINI
EnartisTan
MEL

- Remediate Mercaptan off-flavors
- Balance Redox potential and increase oxidative stability

Stabilization and Bottling Timeline

Stabilization and Bottling Timeline

4-6 Weeks Prior To Bottling

- Microbial Assessment and Stabilization
- White and Rose Wine Protein Stabilization
- Red Wine Color Stability
- Sensory Fining

1-2 Weeks Prior To Bottling

- Tartrate Stabilization
- Enological Tannin and Polysaccharide addition
- Filterability assessment

Bottling

- Tartrate Stabilization with **Zenith®**

Expediting Quality Wines to Market Summary

White and Rosé Wines

1. Juice settling pectolytic enzymes
2. Early juice fining with complex fining agents
3. Pure strain selection for yeast and compatible malolactic bacteria for co-inoculation
4. Fining with complex fining agents
5. Additive tartrate stabilization with Zenith Uno
6. Sensory fine tuning with enological tannins and polysaccharides

Young Red wines

1. Maceration enzymes complemented with sacrificial tannins
2. Pure strain selection for yeast and compatible malolactic bacteria for co-inoculation
3. Early drain and press at ~5 Brix and supplementation with co-pigmentation tannins and condensation tannins for color stability
4. Color stabilization and sensory improvement with complex oak adjuncts containing tannin and yeast polysaccharides
5. Fining and colloid stabilization with complex find agents
6. Tartrate Stabilization with Zenith Color
7. Sensory fine tuning with enological tannins and polysaccharides

Resources

- Webinar: Rapid Clarification: Tips and Tools for Clarifying Juice and Wine During Harvest
- Webinar: Proactive Protein Stabilization: Reducing Bentonite Additions and Improving Quality in White Wines

- Application Video: **Red Wine Stabilization with Zenith Color**
- Application Video: **How to stabilize tartrates with Zenith Uno**
- Zenith® Application Guidelines

- Co-Inoculation Protocol
- Newsletter: Taking the Risk out of MLF

- Webinar: **Modern Wine Maturation Methods: Utilizing Oxygen and Oak Alternatives in Your Aging Program**
- Thermovinification Protocol and Thermovinification Strategies Newsletter

THANK YOU!!

15 Minute Q&A

www.enartis.com

For more information contact your local Enartis Branch