Coinoculation and good practices for managing MLF, fruit, longevity and prevention of microbial spoilage in red wines
1. What is yeast-bacteria coinoculation?
The winemaker vision
Brix and malic curves during a coinoculated yeast - bacteria fermentation

Yeast inoculation

As soon as the pomace cap is formed, coinoculation with selected lactic acid bacteria

1 week

Brix

Malic acid
Two key winemaking actions

Yeast inoculation
As soon as the pomace cap is formed, coinoculation with selected LAB

Brix
Racking

SO2 addition
Malic acid
1 week
Sensory goals of coinoculation during fermentation

Yeast inoculation

As soon as the pomace cap is formed, coinoculation with selected LAB

Cleaner
More fruit

Brix

1 week

Cleaner
More fruit

Cleaner
More fruit

SO2 addition

Malic acid

Racking

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Sensory goals of coinoculation during aging

Yeast inoculation

As soon as the pomace cap is formed, coinoculation with selected LAB

- Brix
- Malic acid

Cleaner
More fruit

1 month

Aging
Sensory goals of coinoculation during aging, bottling, sales

Yeast inoculation
As soon as the pomace cap is formed, coinoculation with selected LAB

Malic acid
Brix

Cleaner
More fruit

Cleaner
More fruit

Aging

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The microbiologist vision
Population curves during a co-inoculated yeast - bacteria fermentation

- Yeast inoculation
- Lactic acid bacteria (LAB) coinoculation
- LAB living population
- Yeast living population
- Brix

1 week

SO2 addition

Malic acid
Population curves during a co-inoculated yeast - bacteria fermentation

Yeast inoculation

LAB coinoculation

Yeast living population

LAB living population

1 week

Indigenous Lactic Acid Bacteria living population

SO2 addition
Post alcoholic fermentation LAB inoculation: indigenous LAB

Yeast inoculation

LAB inoculation, post AF

SO2 addition

Selected LAB living population

Indigenous LAB living population

Yeast living population

1 week

Reminder: Indigenous Lactic Acid Bacteria living population with yeast - bacteria coinoculation
Even with hygiene and fermentation Good Practices, these are the potential risk differences.

**Yeast inoculation**

**LAB inoculation, post AF**

**Selected LAB living population**

**Yeast living population**

**Indigenous Lactic Acid Bacteria living population**

Reminder: Indigenous Lactic Acid Bacteria living population with yeast - bacteria coinoculation
Brettanomyces sp. population curves during a co-inoculated yeast - bacteria fermentation

Yeast inoculation

LAB coinoculation

Yeast living population

1 week

Indigenous Brettanomyces sp. living population

LAB living population

SO2 addition
Post alcoholic fermentation LAB inoculation: Brett!

Yeast inoculation

LAB inoculation, post AF

SO2 addition

Yeast living population

Selected LAB living population

1 week

Brettanomyces sp. living population

Reminder: Brettanomyces living population with yeast - bacteria coinoculation
Even with hygiene and fermentation Good Practices, these are the potential risk differences

Yeast inoculation
LAB inoculation, post AF
Selected LAB living population

Yeast living population

1 week

Brettanomyces sp. living population
Reminder: *Brettanomyces* living population with yeast - bacteria coinoculation
As a sensory consequence, with coinoculation

Yeast inoculation

LAB coinoculation

1 week

LAB living population

SO2 addition

Cleaner

More fruit

Cleaner

More fruit

Cleaner

More fruit
As a sensory consequence, with post-AF inoculation

Yeast inoculation

1 week

Yeast living population

Clean?

Clean?

Clean?

SO2 addition

Selected LAB living population