

DIACETYL PRODUCTION DURING MALOLACTIC FERMENTATION

↑ Maximizing Diacetyl Production

1. Strain Choice

- Choose a strain with a high potential for diacetyl production (PN4, Beta or MBR 31).

2. Contact time with lees

- The shorter the contact time with yeast and bacteria the higher the diacetyl. Rack off the lees or wait a few days for the yeast to die off after primary fermentation before adding bacteria. The living yeast and bacteria break down the diacetyl levels irreversibly.

3. Timing

- Add malolactic bacteria after primary fermentation for a sequential fermentation. Filtering the wine to remove yeast or racking off the lees will contribute to higher diacetyl levels.
- Generally the diacetyl level is highest right when the malic acid is depleted. Stabilizing the wine when the malic and citric are gone will help to maintain the diacetyl level in the wine.

4. Fermentation time

- The longer the malolactic fermentation (MLF) the higher the diacetyl.

5. Wine conditions

- Lower pH and temperature conditions favor higher diacetyl because MLF will be slower under these conditions.

6. Stir during MLF

- Stir the wine during MLF to avoid reductive conditions and to allow slight oxidative conditions. The higher redox potential will tend to favor the production of diacetyl rather than a reduction to acetoin and 2, 3 butanediol which do not contribute to the overall aroma of the wine.

7. Addition of sulfites

- SO₂ binds to diacetyl in a reversible reaction. When adding SO₂ the diacetyl level will seem to disappear but over time the reaction will reverse and the diacetyl will be released back into the wine. SO₂ also inhibits yeast and bacteria activity and can stabilize the diacetyl content at the time of addition.

8. Inoculation rate

- Lower bacteria inoculation rates result in higher diacetyl wines.

Document Edited 8/4/11