Introduction to Malo-Lactic Fermentation (MLF)

What?

- MLF is a bacterial fermentation by Leuconostoc Oenos or Lactobacillus spp, which converts malic acid into lactic acid and carbon dioxide
- Changes flavors
- Increases mouth feel (Diacetyl)

Why?

- Acidity reduction: Typically be 0.2% to 0.4% lower in total acidity, 0.2 to 0.3 higher in pH (useful for northern hybrid varieties)
- Style: Fruitiness will be reduced but the wine will be more complex (desirable in dry reds and some dry white wines such as Chardonnay and Viognier)
- Stability: Improve biological stability in the wine because it reduces the malic acid

When?

- As it does reduce fruitiness, it is almost never desirable for 'fruity' Germanic style wines such as Riesling or Gewurztraminer nor in any sweet wine.
- Growing trend towards co-inoculation which means doing the yeast fermentation and the MLF at about the same time – MLF culture may be added just a few days after yeast was added
- Takes 3 weeks or more to complete, sometimes months if too cool

How?

- Purchase an MLF culture - can occur spontaneously, but not always by desirable bacterial strains
- Wine/Must should have low SO_2 levels (<20 ppm) - do not add potassium sorbate or potassium metabisulfite until the MLF is complete
- Proper nutrition for culture – use an MLF nutrient for best results (e.g. Optimalo, Acti-ML, Micro Essentials)
- Low alcohol (<13%) - some cultures will work up to 15-16%
- Yeast lees contact – don't rack too early, or leave some yeast lees
- pH in the right range (>3.2)
- Temperature in the right range (68° to 72° F)
- Paper Chromatography to tell when complete

Resources:

- Purple Foot library
- www.scottlab.com
- www.lallemandwineus.com
- www.piwine.com
- www.midwestsupplies.com/winemaking-equipment.html

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