OPTIMIZING WINEMAKING FOR NORTHERN GRAPES

Murli Dharmadhikari
Iowa State University
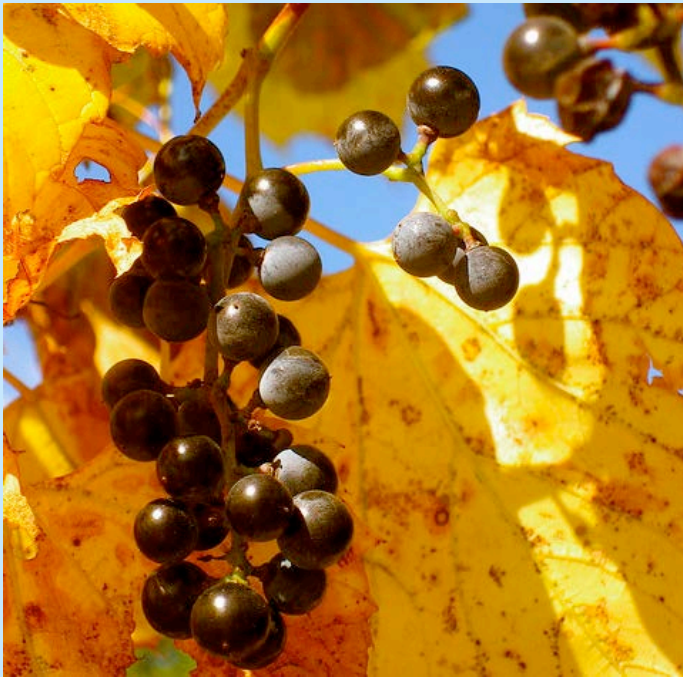
Katie Cook
University of Minnesota

Anna Katharine Mansfield
Cornell University

NORTHERN GRAPES PROJECT

OBJECTIVES

- **Develop and optimize winemaking practices to sustainably produce and market distinctive, high quality wines from cold climate cultivars.**
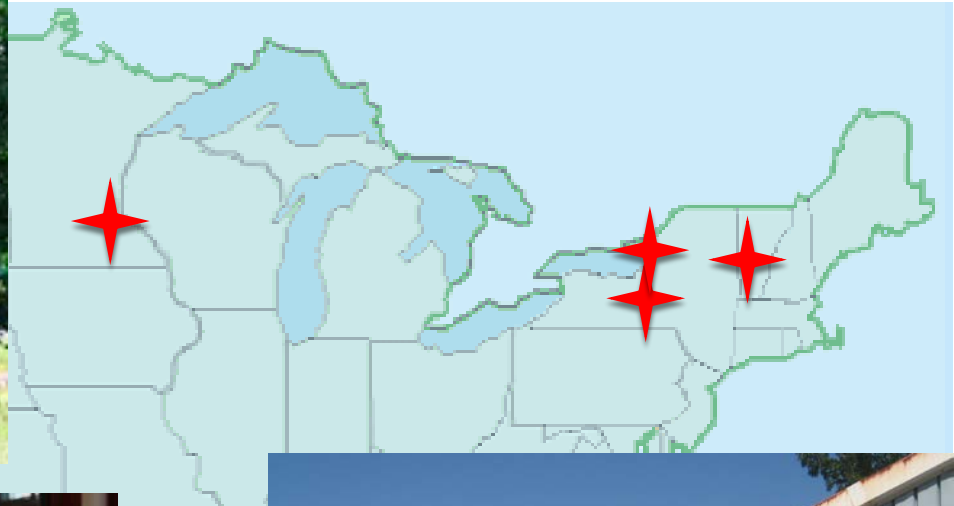

Wild riparia, Chaska, MN

- **Optimize sensory profile**
- **Acid reduction**
- **Suppress hybrid notes**
- **Balance tannin profiles**
- **Varietal vs. regional?**

YEAST TRIALS

AROMATIC WHITES

- **Edelweiss & La Crescent**
- **Impact of processing on volatile extraction**
  - **duration of skin contact**
  - **enzyme treatment**

RED WINE TANNINS

- **Frontenac & Marquette**
- **Polyphenolic characterization**
- **Enological additive trials**

ACID MANAGEMENT

- **Physiobiological deacidification**

  - **Marquette & Frontenac**
    - **malate-reducing yeast strains**
    - **amelioration**

  - **Frontenac gris & La Crescent**
    - **ratable blends of MLF and non-MLF**
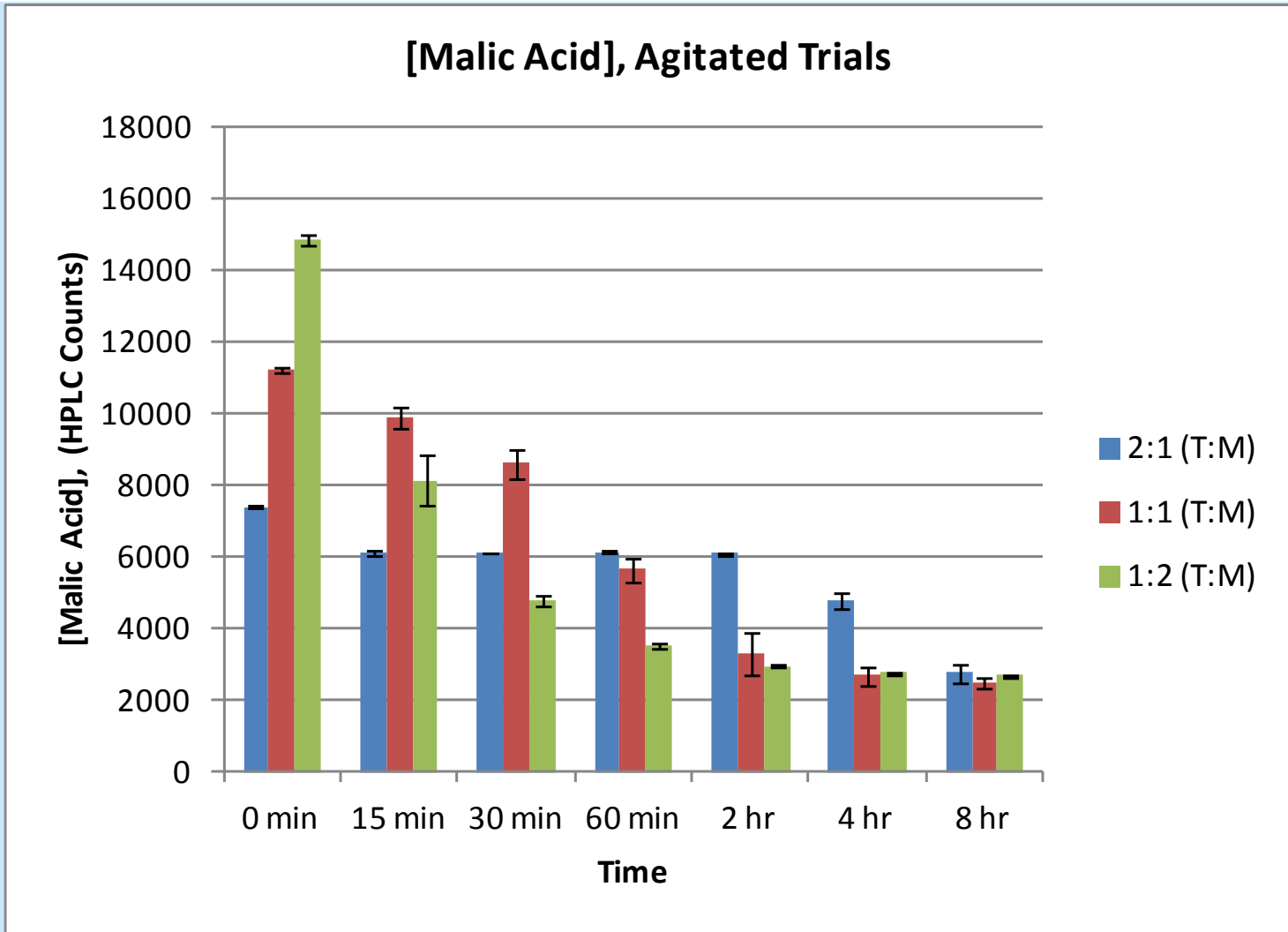   - **amelioration**

ACID MANAGEMENT

- **Revisiting "Double-salt" deacidification**
  - **La Crescent, Frontenac gris, Frontenac rosé**
    - **Pre- and post-fermentation 'double-salt'**
    - **Preferential malic reduction?**

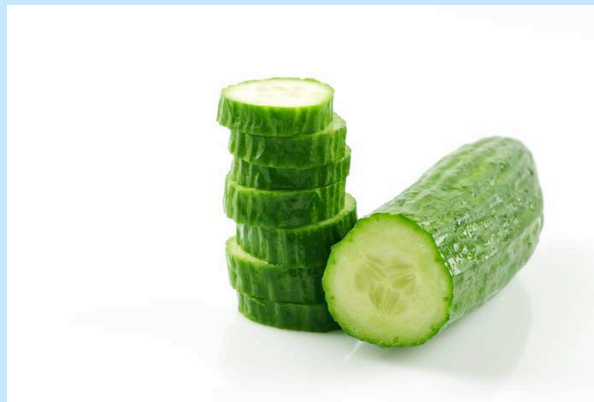- **Cross-regional optimization trials**

ACID MANAGEMENT

Acid reduction kinetics in model wine solutions with varying malic: tartaric ratios

[Malic Acid], Agitated Trials

'HYBRID' AROMA

- **Characterize non-methoxypyrazine 'green' compounds in hybrid grapes**
  - **GCO/MS characterization in 'extreme' wines**
  - **use recombination trials to positively identify compounds**

SENSORY EVALUATION

- **Consumer preference testing**
  - **R-index**
- **Characterization by trained panels**
  - **Projective mapping**
  - **Descriptive analysis**
- **Informal industry tastings**

INVESTIGATORS

Murli Dharmadhikari, Iowa State University

Katie Cook, University of Minnesota

Anna Katharine Mansfield, Cornell University