Tannin addition for low tannin grape varieties (*Vitis vinifera* L. cv. Gamay noir and Pinot noir)

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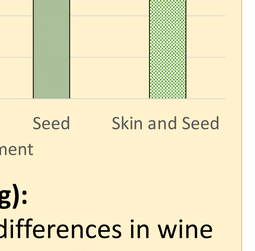
Background

- **Consumer acceptance** of red wine depends on balance, with sufficient **colour**, **flavor**, and **tannin,** which can be difficult to achieve in cool climate regions like Ontario.
    - **Gamay** and **Pinot noir** are considered **"low tannin"** grape varieties.
- In an attempt to extract more colour and tannin from the skin of these varieties, over extraction of seed tannin can occur.
    - **Identifying techniques** to increase tannin content in wines from low tannin varieties, **without over extracting seed tannin**, would greatly benefit the industry.

This project aimed to answer the following **questions**:

- **How do pre-fermentation seed and skin tannin additions impact the tannin content of Gamay and Pinot noir wines?**
- **Are tannin concentrations affected similarly in Gamay and Pinot noir wines?**
- **Do Pinot noir wines from different sites behave differently to tannin addition?**



Materials and Methods


Pinot noir


Gamay

TREATMENTS

- 3 treatments + control to assess the impact of exogenous tannin additions

Control (no added tannin)	Skin tannin added (20g/hL)	Seed tannin added (20g/hL)	Skin and seed tannin added (20g/hL each)

FERMENTATION

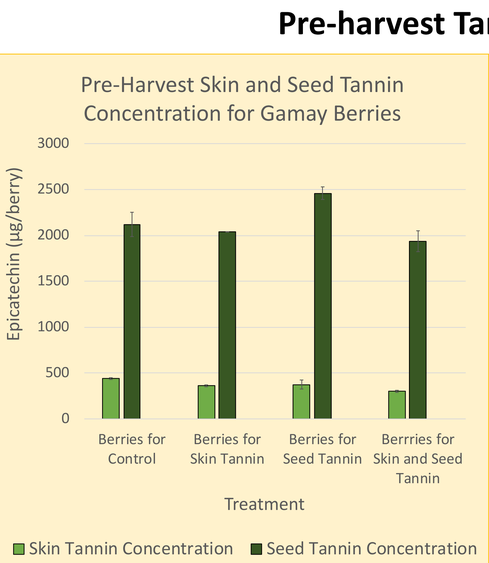
- Triplicate wines made from two vineyard sites

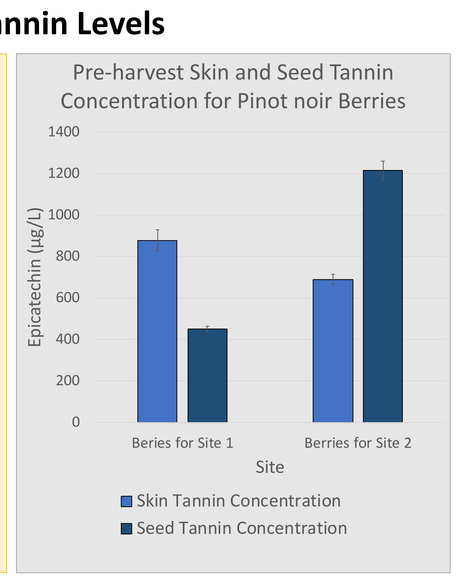
ANALYSIS

- Tannin levels were measured at pressing, post-filtering and after four months of ageing with Methyl Cellulose Precipitation (MCP) assay

Results

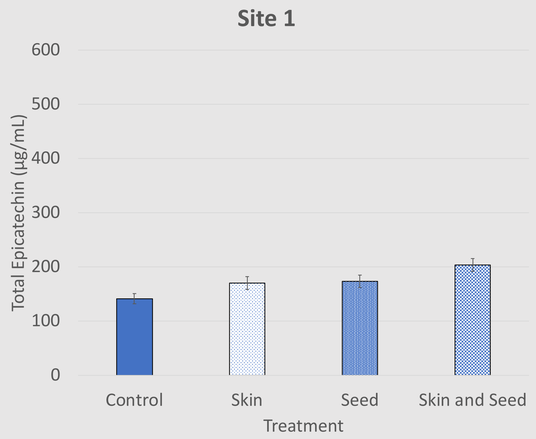
Pre-harvest Tannin Levels

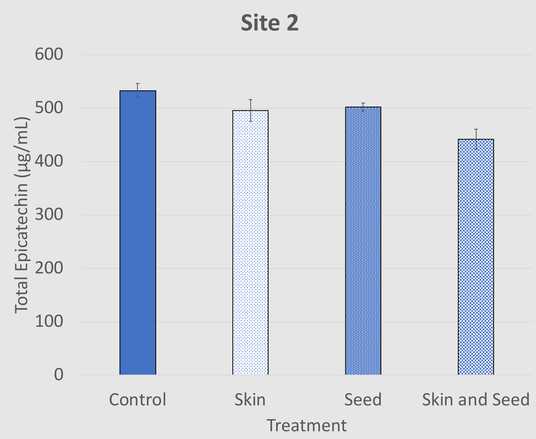




- **Pre-fermentation tannin measurements showed that all endogenous tannin were similar before**
- **Seed tannin were much higher than skin tannin in Gamay**
- **Skin tannin much higher than seed tannin in site one, while the opposite was observed in site two**

Pinot noir Site Differences: Wine





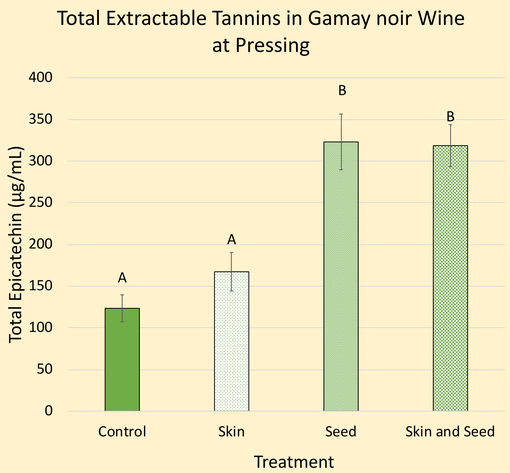
Site 1

- Total tannin level is lowest in site one for all treatments (may be due to presence of rot)
- Skin tannin treatment was not different than the control

Site 2

- Total tannin is highest in site two for all treatments
- Control treatment is highest

Gamay: Tannin levels after ageing



4 months later

Post-fermentation (after pressing):

- Total tannin was higher in the treatments with added seed tannin (seed, and seed+skin tannin added)
- Skin tannin treatment was not different than the control

4 months later (after aging):

- There is no longer any differences in wine tannin measurement across all treatments

Conclusion

- Tannin concentration in both low tannin grape variety Pinot Noir and Gamay was affected similarly by exogenous tannin additions
    - With similar initial concentration in grape skin and seed tannin, the addition of exogenous skin tannins (Scott'Tan, UVA'Tsn Soft, Scott Labs) added at 20g/hL did not increase tannin concentration post fermentation
    - Treatments with seed tannin additions (TANETHYL, AEB) added at 20g/hL had higher tannin concentration immediately post-fermentation
- After four months of ageing, tannin concentration in the treatments dropped to those of the Gamay control wines
- Site differences were observed for Pinot noir wines, with site two containing higher tannin concentration in all treatments

Future of the project

Although tannin measurements were similar between treatments, sensory differences will need to be assessed to fully understand the impact of exogenous tannin additions.

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