Impact of canopy management practices on yield, fruit composition, wine quality, and consumer willingness-to-pay for Riesling wines

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Treatments

Shoot thinning
- Thinned to 5 primary shoots/foot
- No shoot thinning

Leaf removal severity
- Light (~50% of leaves removed)
- Heavy (~80% of leaves removed)

Leaf removal timing
- Early (pea-sized)
- Late (~ 2 weeks pre-veraison)

Data Collection

Canopy Characterization
- EPQA at veraison

Yield Components
- Yield per vine, cluster number, cluster weight

Fruit Composition
- Brix, pH, TA, YAN
- Aroma compounds

Wine sensory analysis
- Projective mapping

Spray penetration

Disease incidence

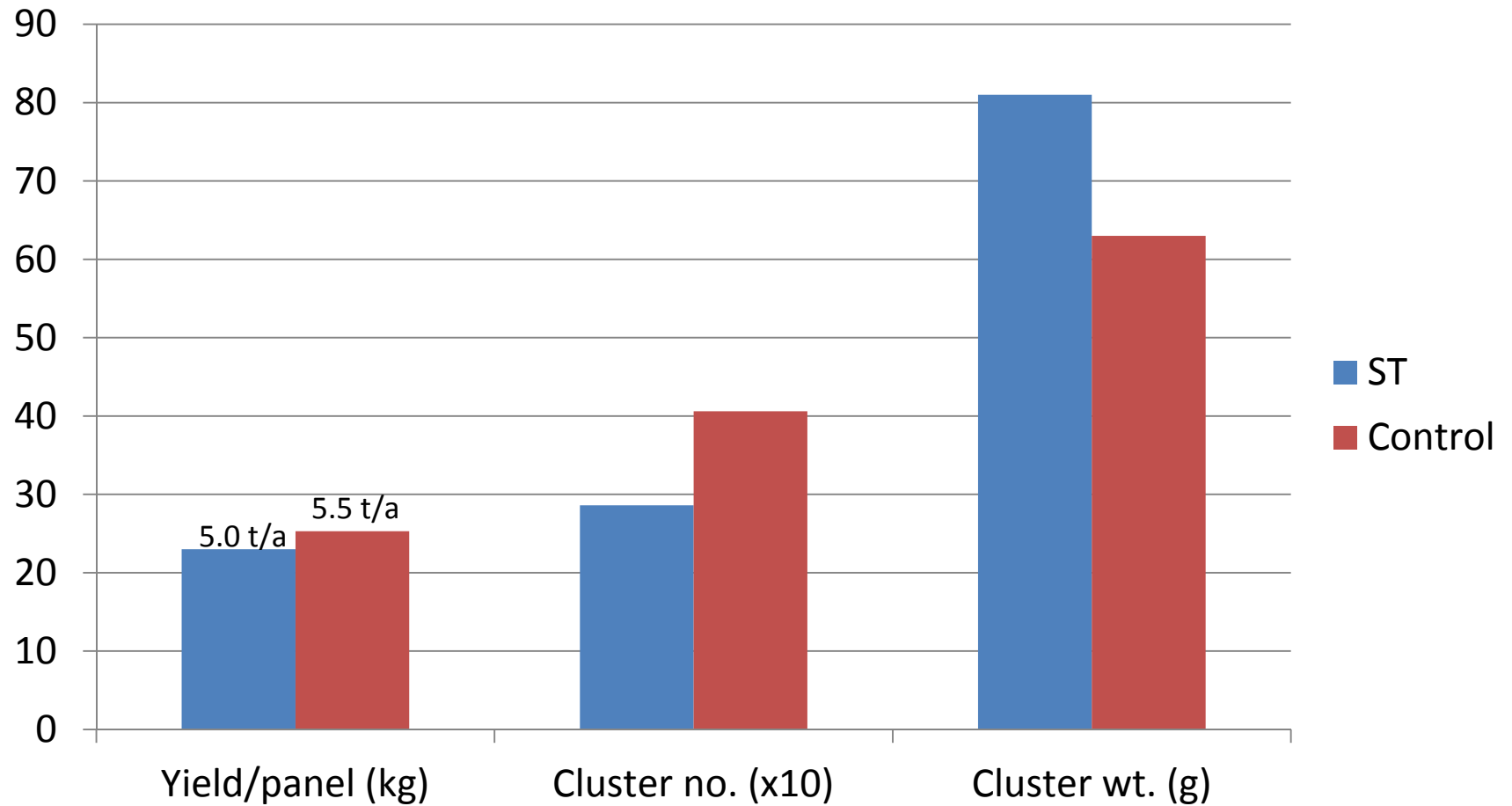Consumer willingness-to-pay for the resulting wines

Shoot thinning
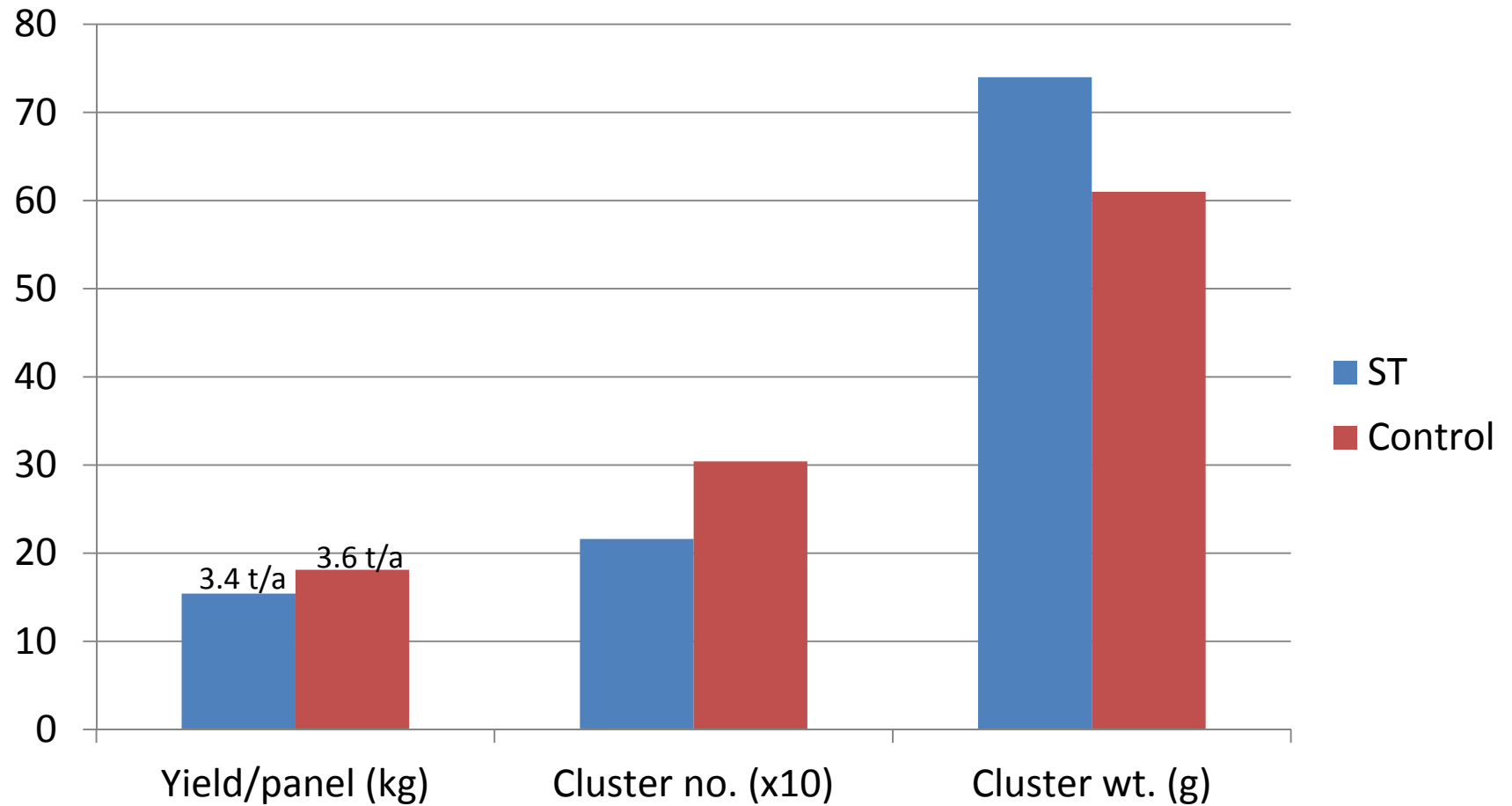
No shoot thinning, no leaf removal

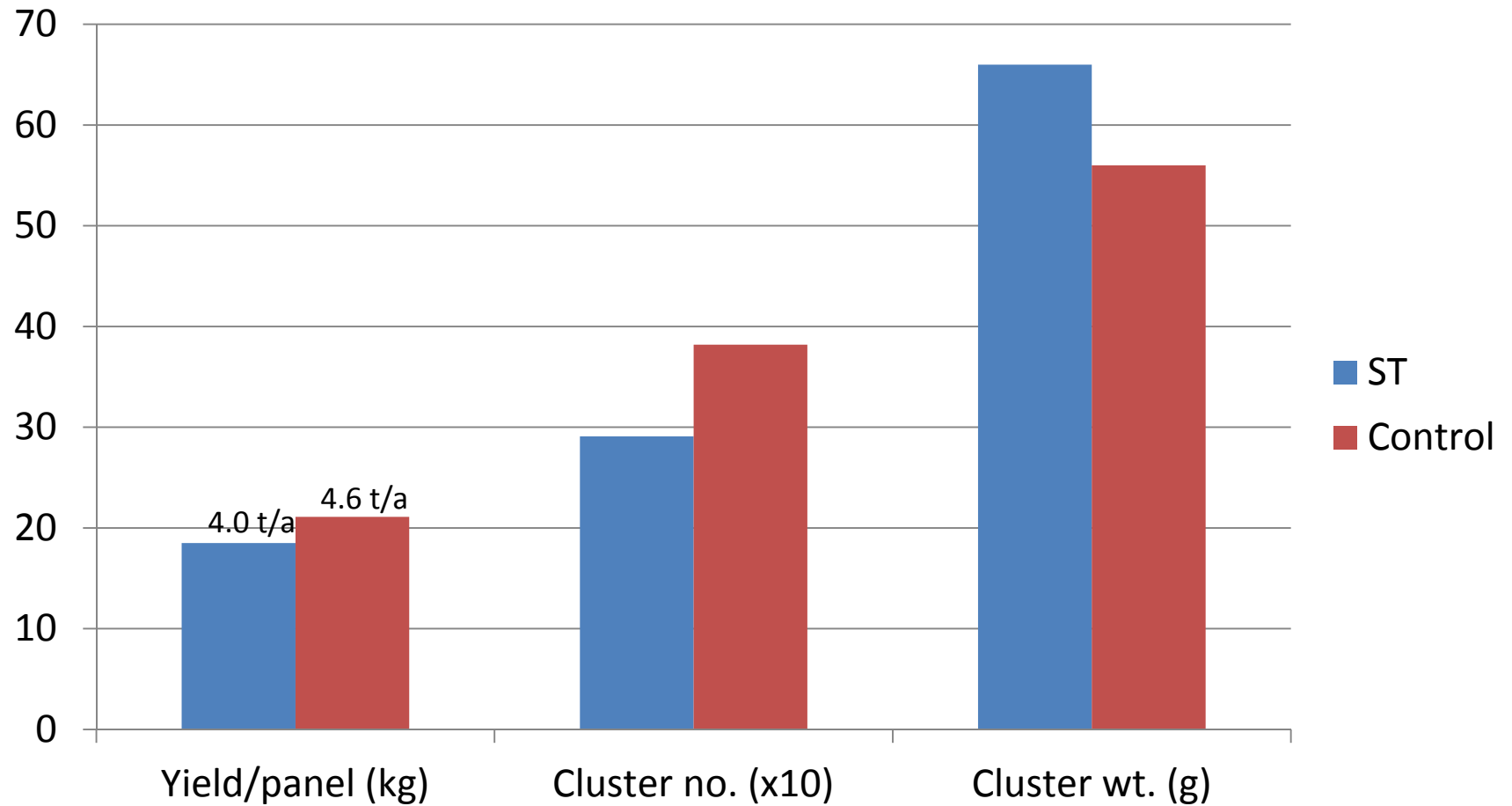# Shoot thinned, heavy leaf removal early
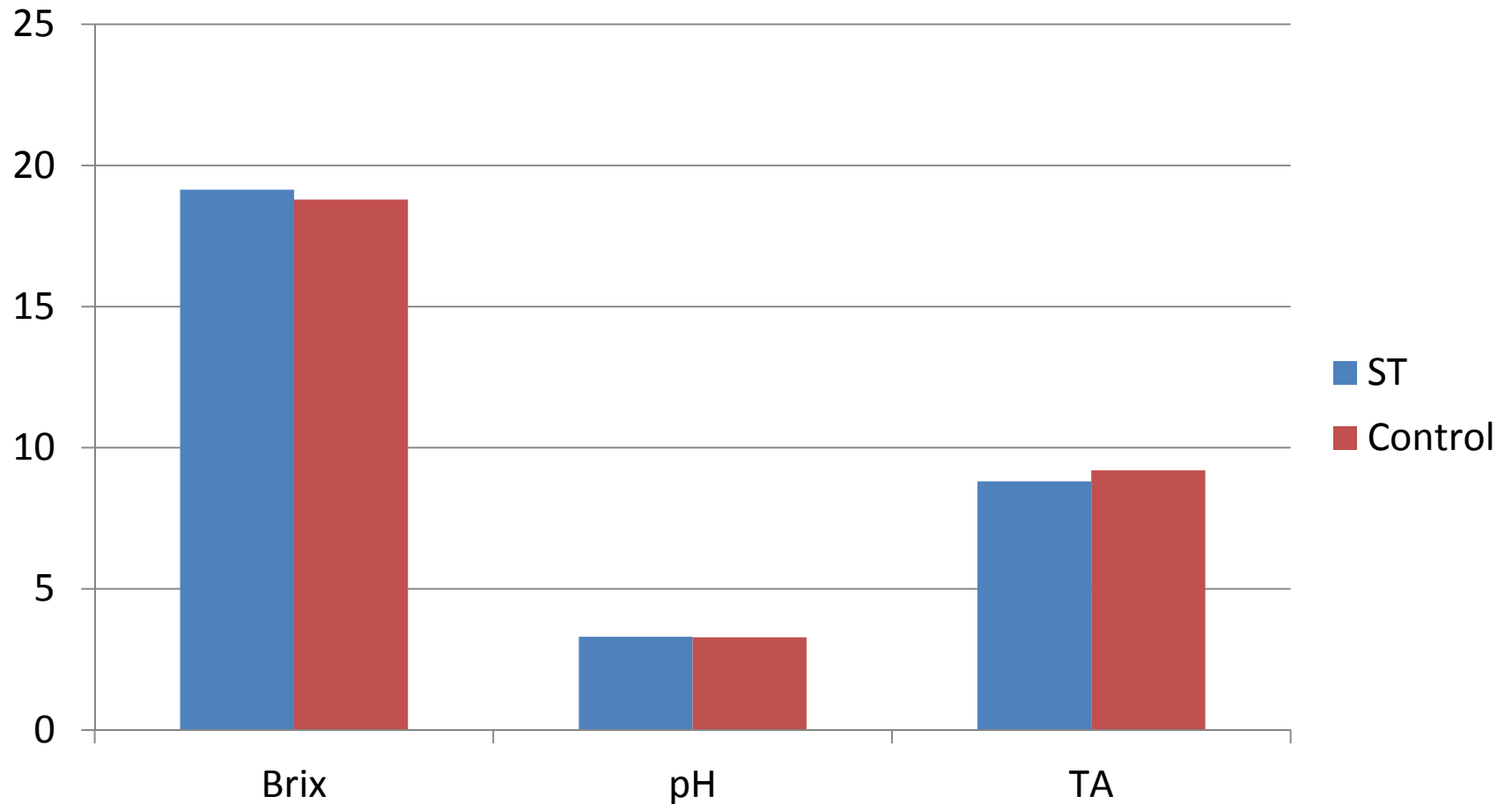
Impact of shoot thinning, year 1

Impact of shoot thinning, year 2

Impact of shoot thinning, year 3

Impact of shoot thinning, year 1

No impact on fruit composition in year 2 or 3

Control

Shoot-thinned

Leaf removal – impact on yield

	LR Timing	LR Severity
2009	NS	NS
2010	NS	Con = 3.8 t/a Heavy LR = 3.4 t/a
2011	NS	NS

Leaf removal – impact on fruit composition

		LR Timing	LR Severity
Brix	2009	NS	NS
	2010	NS	NS
	2011	NS	NS
pH	2009	NS	NS
	2010	NS	NS
	2011	NS	NS
TA	2009	NS	Con = 9.2 g/L Heavy = 8.8 g/L
	2010	NS	NS
	2011	NS	NS

Winemaking

- Fruit combined from field reps for each treatment, split into duplicate lots (19L)

- Wines made at V&B laboratory (NYSAES) using standard white winemaking procedures

- Juice adjusted to 22° Brix

- Fermentations at 15°C

- 2009 finished wines backsweetened to semi-dry (defined by IRF standards)

Preference Testing Results

- 2009 – No significant differences
- 2010 – No significant differences
- 2011 – No significant differences

Projective Mapping of 2009 Wines

- **Goal: Identify wines similar to each other based on consumer sensory evaluation** Reduce number of wines for WTP study to ~3 or 4

- **Twenty-five panelists, consume white wine 1-3x/month**

- **Participants smell, taste, & sort wines**
  - Position wines on a 60cm x 60cm sheet of paper
    - Wines that are very similar are close together
    - Wines that are very dissimilar are distant from one another
  - Panelist use own criteria to evaluate

- **Record distance between each glass and every other glass**

- **Use Factor Analysis to quantify similarities across all panelists**

Projective Mapping Results

3 dimensions → 3 clusters

1. Control
2. ST, No LR
3. No ST, LR Late, LR Heavy
4. ST, LR Late, LR Heavy
5. No ST, LR Early, LR Heavy
6. ST, LR Early, LR Heavy

Projective Mapping Results

4 dimensions → 4 clusters

1. Control
2. ST, No LR
3. No ST, LR Late, LR Heavy
4. ST, LR Late, LR Heavy
5. No ST, LR Early, LR Heavy
6. ST, LR Early, LR Heavy

Projective Mapping Results

5 dimensions → 5 clusters

1. Control
2. ST, No LR
3. No ST, LR Late, LR Heavy
4. ST, LR Late, LR Heavy
5. No ST, LR Early, LR Heavy
6. ST, LR Early, LR Heavy