

Colorado/Nebraska Wine
Quality Assurance Initiative

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CO/NE WINE AND GRAPES

- 100+ Wineries in Colorado in 20+ Counties
- 25+ Wineries in Nebraska in 23+ Counties
- Per capita production low; high growth potential
- Among fastest growing agro-industries
- On-site vertical integration=great value-added
- Perception of wine quality needs enhancement
 - -Wine Quality Assurance Program developed

QUALITY ASSURANCE SYSTEMS

Where Do We Go From Here?

Why Do Quality Assurance?

- Eliminate problems in wine
 - Clarity, aroma, taste faults
- Assure positive attributes dominate
 - Aroma and taste components desired
 - Color desired
 - Body components desired
 - Style desired
- Develop future desired product niches

QUALITY AND CONSISTENCY

- KEYS TO NICHE SUCCESS

- Product and Image Must Coordinate w/Niche Strategy
- Aroma and Flavor Identities Equate with Quality
 - Must show high quality fruit and winemaking sensory characteristics
 - Must educate winemakers to sensory quality definitions
 - Must educate consumers to sensory quality definitions
- Equate Vineyard and Regional Terroir w/High Quality
 - Rootstock, cultivar, canopy, and pest management for optimal quality operation

Present Quality Assurance Systems

- Old World (Prescribed)
 - Based on historical “terroir” and styles
 - Standards defined by historical consensus
- Ontario VQA (Mandatory)
 - Varieties by appellation
 - Wines fault-free by consensus standards
- State and local in USA
 - CA appellations, PA Premium Wine Group, Lake Erie Quality Wine Alliance, NJ Quality Alliance, etc.
 - Standards defined by historical consensus

Structural Problems with Wine Quality Assurance Standards

- Wine variability extreme
 - Yearly vintage and “terroir” effects of grapes
 - Relatively “natural” fermentation effects
 - Style and aging variability
 - Geographic and niche market fragmentation

Definition Problems with Wine Quality Assurance Standards

- QA panels not statistically robust

- QA panels lack meaningful quantitative sensory standards
- Wine marketers have appropriated definitions of “quality” without applying statistically robust standards

Benefits of Statistically Robust Quantitative Standards

CO/NE Quality Wine Program

- Long range plan to promote systemic pursuit of wine quality
- Starts with fault-free assurance panel
 - Fault chemicals have quantitative sensory standards
 - Panels trained to fault sensory standards by Quantitative Descriptive Analysis methodology
 - Confidential reporting and grouped anonymous data for statistical evaluation
 - Reports contain advice for wineries on quality assurance steps in production of wines and/or recommendations for further chemical analyses
 - Fault-free designation used for marketing status
- Market wines will be tested to sensory fault standards
 - chemically analysis can be added
- Add historical consensus sensory panel
 - for market description purposes
- Cross test wines with both fault-free and consensus sensory panels and give scores to wineries
- Panels will perform research on fault combinations to define interactions
- Consumer surveys will validate effects of standards
- Product development panels will research attributes, develop relative quantitative standards by wine niche, and test against chemical analysis and consumer surveys

Cost of CO/NE Quality Wine Assurance Program

- Sample costs for quality testing panels paid by industry and/or wineries
- Initial fault standards QDA training paid for by trainees

Benefits of CO/NE Quality Wine Program Sensory Training

- QDA training separates and recombines faults for individuals according to quantitative references
 - Clearly defines faults for each individual
- QDA training + reference samples develops more accurate individual sensory apparatus
 - Individuals learn process of separation and definition
 - Process stays in memory permanently, and can be re-referenced by scalar standards
 - Consensus memories of individual aromas are relatively impermanent

2011 Quality Assurance Assessment Results

- Total Wines Assessed = 139 + 9 Controls

	Red	White	Rose	Dessert	Fruit
■	71	53	10	2	2
- CO wines – 58 NE wines – 81
- CO 12% Participating Wineries = 12/103
- NE 57% Participating Wineries = 13/23
- Perfect Combined Panels Score = 32.0
- Pass Combined Panels Score $\geq 22.4 \geq 70\%$
- Faults Panel Avg. Score = 10.65/12.0
- Hedonic Panel Avg. Score = 12.84/20.0
- Combined Panels Avg. Score = 23.49/32.0
- Combined Panels Scores by Group
- Failed 70% Score 20-22.3 = 38 wines
- Passed 70% Score $\geq 22.4 = 101$ wines
- Wines Failed by Combined Panels = 38/139 = 27.3%
- 5/58 CO failed (8.7%) and 33/81 NE failed (40.8%)
- Wines Failed by Faults Panel Alone = 0

■ Wines near-Failed by Faults Panel Alone = 9

2011 Quality Assurance Faults Panel Score Wine 107

Volatile Acidity	Panelist 1	Panelist 2	Panelist 3	Panelist 4
Acetaldehyde	3*	1	2	3*
Oxidation	3*	0	2	2
Corked	0	0	2	0
SO ₂	2	0	0	0
Reduced Sulfurs	0	0	0	0
Brettanomyces Associated	0	1	0	0
Total Panelist Score	8	2	6	5
Average Panel Score (12- Panel average) = 6.75				

2011 Quality Assurance Faults Panel Score Wine 107

■ SUMMARY PANELIST COMMENTS

- failed-something off in the nose
- acetic acid, isovaleric acid
- acetic acid, acrid, musty, geranium(3)
- failed-Ethyl Acetate, oxidized

2011 Quality Assurance Hedonic Panel Score Wine 107

Panelist 1	Panelist 2	Panelist 3	Panelist 4	Panel Average
13.00	10.00	12.00	10.50	11.38

SUMMARY PANELIST COMMENTS

Appearance:

-clear-light to medium-bit dull, hint of browning on edge, clean, a little brown

Aroma:

-fruity-complex-touch of VA, cherries-spice-geranium, some ethanol-wet dog-earth, off-tea-phenolic

Taste:

-subtle fruit-acrid character-touch bitter, dried plum-bitter cherry, very bitter-no fruit

Body:

-light, light to medium

Finish:

-tart, sawdust mouthfeel-clean, reduction in acid would help bitterness, mechanical handling too rough

2011 Quality Assurance Combined Panel Score

Wine 107	Faults Panel Score	Hedonic Panel Score	Combined Panel Score	Pass/Fail Status
	6.75/12	11.38	18.13/32.00	Fail

SUMMARY PANELIST COMMENTS

Appearance:

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Taste:

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Body:

-light, light to medium

Finish:

-tart, sawdust mouthfeel-clean, reduction in acid would help bitterness, mechanical handling too rough

2011 Quality Assurance Faults Panel Score Wine 168

Volatile Acidity	Panelist 1	Panelist 2	Panelist 3	Panelist 4
Acetaldehyde	0	0	1	0
Oxidation	2	0	1	0
Corked	0	0	0	0
SO ₂	2	0	1	0
Reduced Sulfurs	0	0	0	0
Brettanomyces Associated	0	0	0	0
Total Panelist Score	4	0	3	0
Average Panel Score (12-Panel average) = 10.25				

2011 Quality Assurance Hedonic Panel Score Wine 168

■ SUMMARY PANELIST COMMENTS

■ Hint of oxidation

■ Slight VA and SO₂

- Slight oxidation

2011 Quality Assurance Hedonic Panel Score Wine 168

Panelist 1	Panelist 2	Panelist 3	Panelist 4	Panel Average
18.00	17.00	13.00	17.50	16.38

SUMMARY PANELIST COMMENTS

Appearance:

-clear dark red/purple, dark color, clean, nice bright red

Aroma:

-complex fruit/berries/toasted wood, red fruits-currant, licorice, spice, grassy w/coffee-fades quickly, good-fruity

Taste:

-round soft palate-touch sweetness or fruit, spicy and red berries , fine tannins late, persistent-pleasant, not green or harsh, some tobacco w/spice-hint of black pepper covers fruit-interesting, good tannin balance-young-fruit on finish-blackberry

Body:

-good, medium

Finish:

-very nice

2011 Quality Assurance Combined Panel Score

Wine 168	Faults Panel Score	Hedonic Panel Score	Combined Panel Score	Pass/Fail Status
	10.25/12	16.38	26.63/32.00	Pass

SUMMARY PANELIST COMMENTS

Appearance:

-clear dark red/purple, dark color, clean, nice bright red

Aroma:

-complex fruit/berries/toasted wood, red fruits-currant, licorice, spice, grassy w/coffee-fades quickly, good-fruity

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Body:

-good, medium

Finish:

-very nice

CO/NE 2011 Quality Assessment Results

- Scores and Panel Comments returned for each entry
 - Grouped statistics also generated on wines and panelists
- Two Panels Used: Trained Faults Panel & Hedonic Panel
 - Scores from 2 panels combined to give overall score
- Total Wines Assessed = 139 + 9 Controls
 - Participating Wineries: CO 12% =12/103 & NE 57% =13/23
 - CO wines – 58 NE wines – 81
- Perfect Score = 32.0 Pass Score $\geq 22.4 \geq 70\%$
 - Failed =20-22.3 = 38 wines = 27.3% (CO = 8.7%)
 - Passed ≥ 22.4 = 101 wines = 72.7% (CO = 91.3%)