Muscadine Summer Chores & Fertility

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Canopy Management
Fertilization

Summer Vineyard Management

- Weed Control
- Insect Pest
- Disease Control

- Canopy Management;

Canopy Management

- Skirting is the process of trimming vine growth to increase air flow and avoid herbicides from damaging the vine.
- Skirting should be done in late Summer, when vines become vigorous.
- Vine canopy should be skirted **Knee High**

Skirting

Hedging

- Hedging is the process of cutting the growth **at the top and sides of the vines**
- Hedging allows more air flow into the canopy
- Hedging allows harvest machines or picking crew to go through the vineyard more efficient
- Hedging should be done shortly (1-2 weeks before harvest)

Fertility

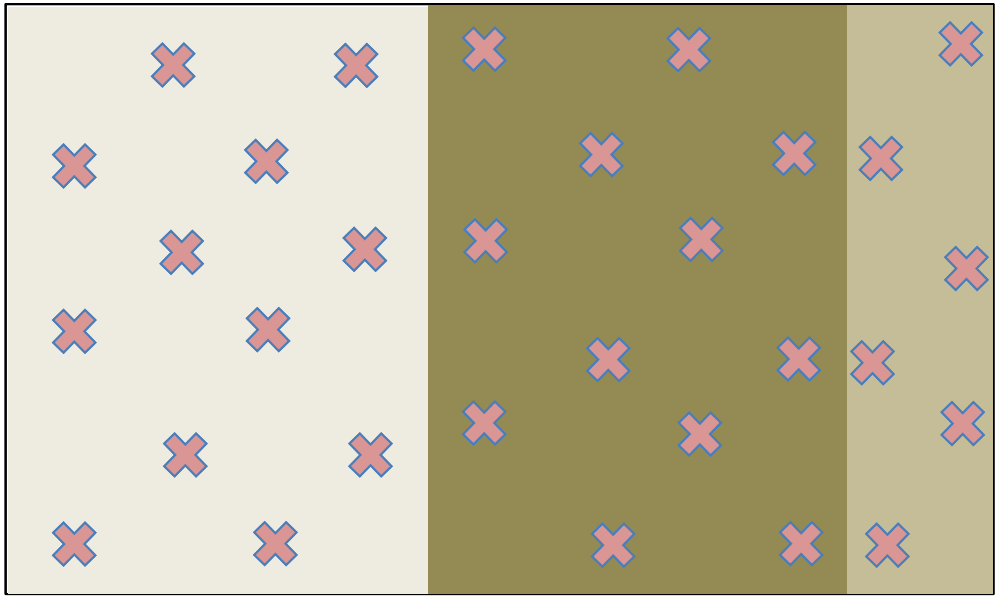
Fertility

- Soil and plant nutrient testing: Routine task (every spring!!!)
- Whole leaf samples (60-80) should be collected and send to a tissue nutrient testing service **during bloom**
- **pH: between 6-6.5**
- **Do NOT FERTILIZE after June/July**

2. Soil pH: 6.0-6.5

Soil sampling :

- **0-7 inches**
- **7-14 inches**



Combined Samples 1 and 2 (0-7;7-14)

Combined Samples 3 and 4 (0-7;7-14)

Combined Samples 5 and 6 (0-7;7-14)

Adjust pH based on Soil Samples

Send soil samples to Agronomic Service

Optimal pH: 6.0-6.5

Optimal P in soil 30 ppm of P

Adjust pH based on Soil Samples

Lime (not Gypsum)

Incorporate in the summer BEFORE posts and planting

Fertility mature vines

Table 5. Appropriate levels of nutrients based on leaf analysis during bloom (Poling et al. 2003)

Element (Unit)	Optimal Range
Nitrogen (%)	1.65–2.15
Phosphorus (%)	0.12–0.18
Potassium (%)	0.8–1.2
Calcium (%)	0.7–1.1
Magnesium (%)	0.15–0.25
Boron (ppm)	15–25
Copper (ppm)	5–10
Iron (ppm)	60–120
Manganese (ppm)	60–150
Molybdenum (ppm)	0.14–0.35
Zinc (ppm)	18–35

- Apply fertilizer 2-3 times per year, **not later than June**
- Use Calcium Nitrate, Ammonium Nitrate, or full-spectrum fertilizer

Fertility of young vines

Fertility young vines

Vine Age	Irrigation	Fertilizer	Timeframe
First Year	**Yes**	**Every 3-4 weeks, starting 2 weeks after planting**	**Planting – August**
Year 2	Yes	Every 2 Months	April – August
Mature	No	2 times per year	April - June

- Fertilize in a 12-18 inch circle around the plant
- Water is the most important issue!

Fertility young vines

Vine Age	Irrigation	Fertilizer	Timeframe
First Year	Yes	Every 3-4 weeks, starting 2 weeks after planting	Planting – August
Year 2	**Yes**	**Every 2 Months**	**April – August**
Mature	No	2 times per year	April - June

- increase the circle
- fertilize less frequent,
- keep plant irrigated if longer stretches without rain

Two year old vines

Good vigor

Weak vigor

- Weaker plants: treat like one-year old plants

Fertility recent research

Does it matter where I live and which cultivar I grow?

The quick answer is: **Yes, it might be**

Fertility recent research

Leaf-tissue Nutrient Dynamics in Mature Muscadine Cultivars Carlos and Noble in Georgia and North Carolina

Tekan S. Rana[1], Erick D. Smith[2], Cain Hickey[3], and Mark Hoffmann[1]

HortTechnology 2021: 31(3)

N sufficiency range might be too low

Location, growth stage	Yr	N[v]	P	K
				Tissue nutrie
Sufficiency range		1.65–2.15	0.12–0.18	0.80–1.20
Piedmont North Carolina[z]				
Bloom	2018	↑	↑	↑
	2019	↑	↑	↔
Véraison	2018	↑	↑	↔
	2019	↑	↑	↓
Postharvest	2018	↔	↔	↓
	2019	↔	↔	↓
North Georgia[y]				
Bloom	2018	↑	↑	↑
	2019	↑	↔	↔
Véraison	2018	↑	↔	↔
	2019	↑	↔	↓
Postharvest	2018	↑	↔	↔
	2019	↓	↔	↓
South Georgia[x]				
Bloom	2018	↑	↔	↔
	2019	↑	↔	↔
Véraison	2018	↑	↔	↔
	2019	↑	↔	↓
Postharvest	2018	↑	↔	↓
	2019	↑	↔	↓

Fertility recent research

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Carlos might have higher sufficiency ranges and fertility demands than Noble

	N	P	K
			Tissue nutrie
Sufficiency range	1.65–2.15	0.12–0.18	0.80–1.20
2018			
Carlos	2.99	0.23	1.32
Noble	2.91	0.22	1.41
P value	NS[z]	NS	NS
Carlos	2.49	0.19	0.95
Noble	2.29	0.19	1
P value	0.0098	NS	NS
Carlos	2.02	0.14	0.61
Noble	1.76	0.13	0.64
P value	0.0039	0.0472	NS
2019			
Carlos	3.35	0.21	1.16
Noble	2.99	0.19	1.26
P value	0.0039	0.0232	NS
Carlos	2.62	0.2	0.68
Noble	2.49	0.23	0.79
P value	0.0058	NS	0.0031
Carlos	2.06	0.16	0.74
Noble	2.26	0.15	0.76
P value	NS	0.046	NS

Fertility recent research

Does it matter at which time and from which part of the plant I take tissue samples?

The quick answer is:
The timing matters, but not the location of the leaf

Mature leaf

Opposite the cluster

Petiole

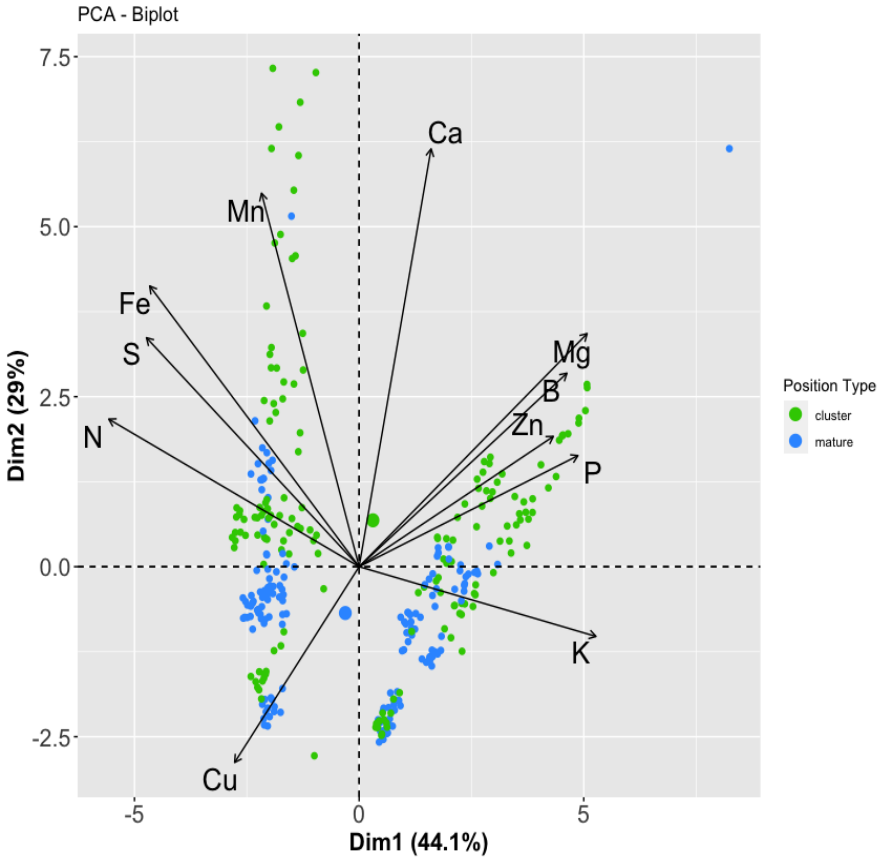
Whole leaf

Fertility recent research

Impact of sampling time and tissue type on nutrient concentration in petioles and leaves of mature muscadines.
Tekan S. Rana and Mark Hoffmann. In preparation. *unpublished*

Minimal differences between location of tissue

It does not matter if you take a sample opposite the cluster or a fully mature leaf



Fertility recent research

Impact of sampling time and tissue type on nutrient concentration in petioles and leaves of mature muscadines.
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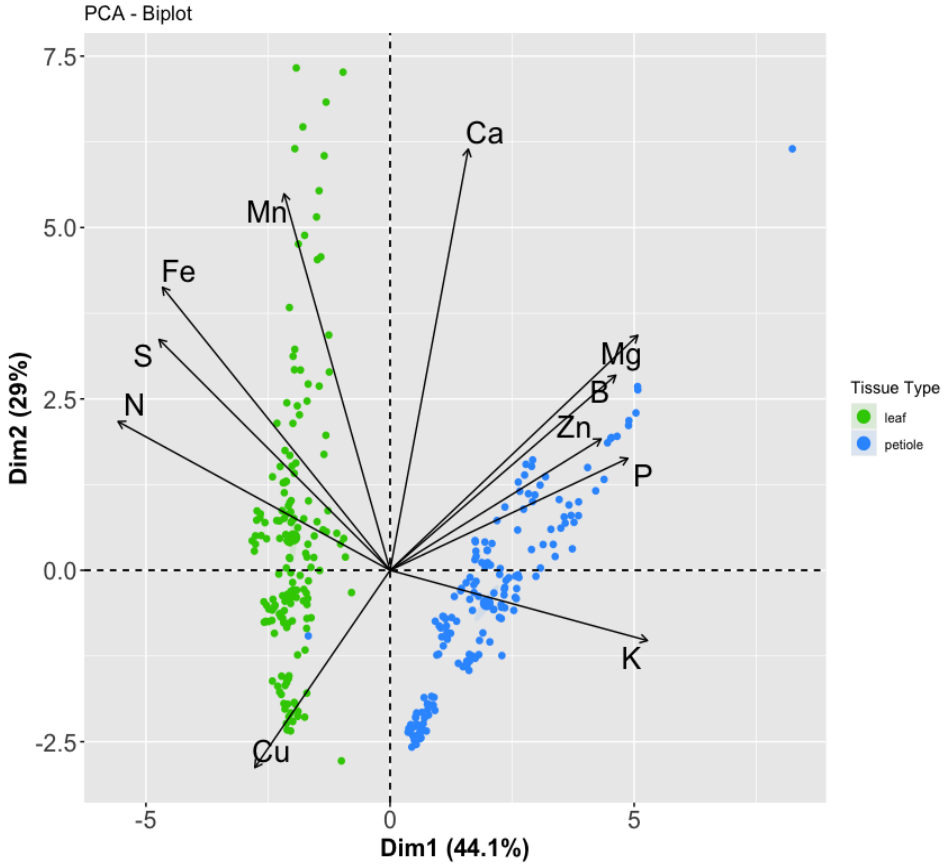
Strong differences between tissues

But it DOES matter whether or not you take a leaf or a petiole tissue



Research Conclusions

- Tissue nutrient content differ between cultivars and region and growth stage of the plant
- We found strong predictors for yield in both, petiole and whole leaf samples
- More research is needed to adjust muscadine sufficiency ranges

Take-home

- Soil samples can be taken in early spring
- Tissue samples can be taken during bloom
- **Take samples by cultivar and location**
- Don’t fertilize after June!

Under Vine Weed Control

Row Middles Weed Control

Resources

https://grapes.ces.ncsu.edu/

https://smallfruits.org/

https://content.ces.ncsu.edu/muscadine-grape-production-guide

Thank You

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