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## Nitrogen deficiency

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A deficiency of nitrogen is associated with low vine vigor. Symptoms of low levels in vines include light green (chlorotic) leaves and reduced shoot growth.

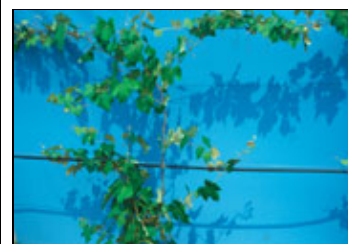
Petiole analysis, based on either total nitrogen or nitrate nitrogen, can be used to confirm either very high or very low nitrogen levels in grapevines.



Niagara vines with (left) and without (right) nitrogen fertilization. Nitrogen-deficient vines are smaller and have shorter shoots and smaller, light green leaves. These vines were in their fourth growing season. Photos: T. Zabadal



A light-colored, nitrogen-deficient leaf among normal leaves. Photo: T. Zabadal



Above left, Niagara vines managed with nitrogen and, at right, without nitrogen fertilization. These vines were at the start of their second growing season. Photos: T. Zabadal

### Additional information

- Search [MSU Extension News for Agriculture](#) site
- [Search MSU Fruit CAT Alert newsletter](#) for articles. Type in keyword: nitrogen
- Sampling information from [MSU Soil and Plant Nutrient Laboratory](#)

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