

Vineyard Nutrition for Cold Climate Grapes

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Developing an appropriate fertility program should be the first step towards growing quality cold hardy grapes. Grapevine nutrition is important not only to growth and yield, but, influences disease and insect susceptibility, storage life, and grape quality. Over the last several years, five states have been involved in nutritional profiling of cold climate grape cultivars as part of the Northern Grapes Project. With this multi-state collaborative effort, we have increased production of cold hardy grapes (*Vitis vinifera*-based hybrids) and consumer acceptance, and we continue to make strides to understanding cold hardy grape cultivar performance.

To assess grapevine nutrition, we sampled soil and plant tissue across multiple locations in Iowa. By profiling soil and tissue nutrition, we can tailor fertilizer recommendations for cold climate grapes instead of relying on information developed for *V. vinifera* and *V. labrusca*. In this study, soil and tissue samples were used to correlate yield, vine, and fruit parameters for Marquette, La Crescent, and Frontenac. Commercial sites were selected in Iowa to represent different soil types and textures: Behrens vineyard, Carroll, IA (Loam), Blackwing Vineyards, Glenwood, IA (Loam; Silt Loam), Park Farms, Bankston, IA (Loam; Silt Loam), Snus Hill Winery and Vineyard, Madrid, IA (Sandy Loam), and Tassel Ridge Vineyard and Winery, Oskaloosa, IA (Silty Clay Loam; Clay Loam). Soil samples were collected at the beginning of the season. Samples were obtained by following general soil testing guidelines: 9 core samples per replication. Tissue samples were collected at bloom, 4 weeks after bloom, and at veraison. Plots within cultivar were divided into three replications with at least 15 mature vines per replication. All soil and tissue samples were sent to a commercial lab for analysis.