Diagnosing nutrient-related problems in fruit trees

Lailiang Cheng

Section of Horticulture in the School of Integrative Plant Science at Cornell University

Summary

Effective nutrient management of high density orchards for high yield and quality depends on accurate assessment of tree nutrient status, especially for high value cultivars such as 'Honeycrisp' that have low vigor and are prone to nutrient imbalances. This presentation includes information on how to assess tree nutrient status by recognizing nutrient deficiency symptoms, taking soil and tissue samples for nutrient analysis, and interpreting nutrient analysis results. Each diagnostic method (visual diagnosis of nutrient deficiency, soil analysis and tissue analysis) has its pros and cons and combining all three methods provides the best approach to proper diagnosis of nutrient-related problems in tree fruits. Bitter pit, a calcium deficiency-related fruit disorder, will be used as an example to demonstrate the importance of nutrient balance as well as nutrient concentrations in the development of nutrient-deficiency related fruit disorders.