

BCSR and Pest and Disease Relations.

The ratios of the major cations affects crop pest and disease susceptibility in several ways. Appendix D shows over fifty documented interactions between nutrition and pests or diseases in tree fruits and vines. Uptake of major nutrients such as calcium, magnesium, potassium and sodium are directly linked to their ratios on the clay. Excesses or imbalances result in poor uptake of one or more of these essential nutrients. Low calcium or potassium are linked to several major problems in fruit production (Appendix D). Bitter pit, fruit cracking, soft fruit, preharvest rot, crown gall, root rots, decline, spider mites, and nematodes have all been linked to imbalances of these major cations.

Poor drainage and soil structure are linked to some root diseases and fruit rots. The low oxygen conditions accompanying water logged soils do not allow N, P or S to be taken up well, which aggravates several problems. Achieving good soil structure and drainage are goals of the BCSR approach.

Excess nitrogen is linked to increased damage from leaf feeders such as aphids, mites, leafhoppers, and whiteflies. Several key diseases of tree fruits and vines are also aggravated by high N levels, including fireblight, brown rot, mildew, bunch rot and stem necrosis. High N contributes to other disorders such as shedding of blossoms, splitting and softening of fruit, and delayed maturity. The BCSR approach is very valuable for managing nitrogen properly.

I believe nutrition should be one of the first considerations in any integrated pest management program. Reductions in pesticide use often accompany yield and quality improvements when a sound nutritional program is followed. Balancing the major cations should be followed by attention to the other major and minor nutrients. Often the SLAN method is valuable for this. For this reason, I suggest using both schools of thought to maximize yields and quality.