
The Application of Earth Science Findings to the Practical Problems of Growing Winegrapes

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Abstract

Transforming science findings into practical applications is presented in the specific case of using remote sensing to detect the presence of an infestation of grapevines. The vines of Napa Valley were attacked by the root louse, *Phylloxera*, in the 1990's resulting in a very large loss of production. The spectral response of the vines can be causally linked to the disruption in the ecology of these agro-ecosystems. Borrowing from NASA's investments in ecological science and its use of remote sensing, an applied project was formed and conducted with Robert Mondavi Winery to experimentally determine if we could remotely sense changes in the vineyards linked to the actions of this louse. We found that changes in leaf development due to the destruction of the roots was strongly associated with presence of the louse. This result is consistent with the ecological science and remote sensing of natural ecosystems. We also examined changes in leaf biochemical composition, leaf temperature and chlorophyll content. The experience has helped to further the development of a service industry based on remote sensing in the grape-growing regions of California.
