

Trap Crop Concept for Managing Insect Vectors of Pierce's Disease

Notes from a discussion among Joao Lopes, Isabelle Lauziere, Barry Hill, Paul Giboney, T.P Delaney, and Mark Black. Pierce's Disease Research Symposium, 17Dec08, San Diego, CA

The trap crop technique relies on the attraction of insect pests to plantings other than the main crop. Timing is important in utilizing a trap crop. The pests should not be allowed to reproduce on the trap crop and the crop itself should not sacrifice much of field area. However, it is important to plant a trap crop over an area large enough to attract the resident pests.

(http://www.knowledgebank.irri.org/IPM/cultCtrl/Trap_Crop.htm)

- Mixture of plant species needed because feeding of multiple vectors varies among species and over time from polyphagous to preferences for certain plants. Plant phenology should vary among host plants (new shoot growth at different times). Plants should have at least seasonal aesthetic appeal.
- Grape monoculture is less preferred by vectors than a diverse landscape.
- Trap crop species should be more preferred as vector feeding hosts than grapes.
- Trap crop species should emphasize perennials, propagate easily, have fast growth, and produce an abundance of young shoots.
- Trap crop species should tolerate frequent pruning & insecticide applications.
- Trap crop species should not be too high for spraying; tall plants don't take up insecticide as well as shorter plants.
- Prune periodically, irrigate, and fertilize to encourage new growth preferred by insects.
- Critical position of the trap crop is at the interface of vector source and vineyard, and at the intersection with a narrow vector corridor.
- Combine with barren zone that is wider than trap crop
- Avoid plants that are known hosts of *Xylella fastidiosa*.
- Insecticide use on trap crop should not have strong anti-feeding activity.
- Opportunity for killing maximum number of insects with minimum insecticide.
- Reality check: "GWSS flies ½ mile." Barry Hill, CDFA
- GWSS uses visual cues (green color) to find plants from all distances, olfactory at medium range, contact and tasting once on the plant (Roger Innes, et al. Dec08 PD Res. Symp. discussion).