



Fusarium Dieback and its vector Polyphagous shot hole borercausing branch dieback on avocado in California

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Symptoms on a backyard avocado tree in South Gate, Los Angeles



Symptoms on the bark and wood tissues



Symptoms on avocado branches (cv. Hass)



Symptoms on avocado branches (cv. Hass)



Fusarium sp. isolated from both symptomatic plant tissues, beetle and larvae



Fusarium sp.

Fusarium dieback symptoms on . avocado (cv.Hass) in Israel



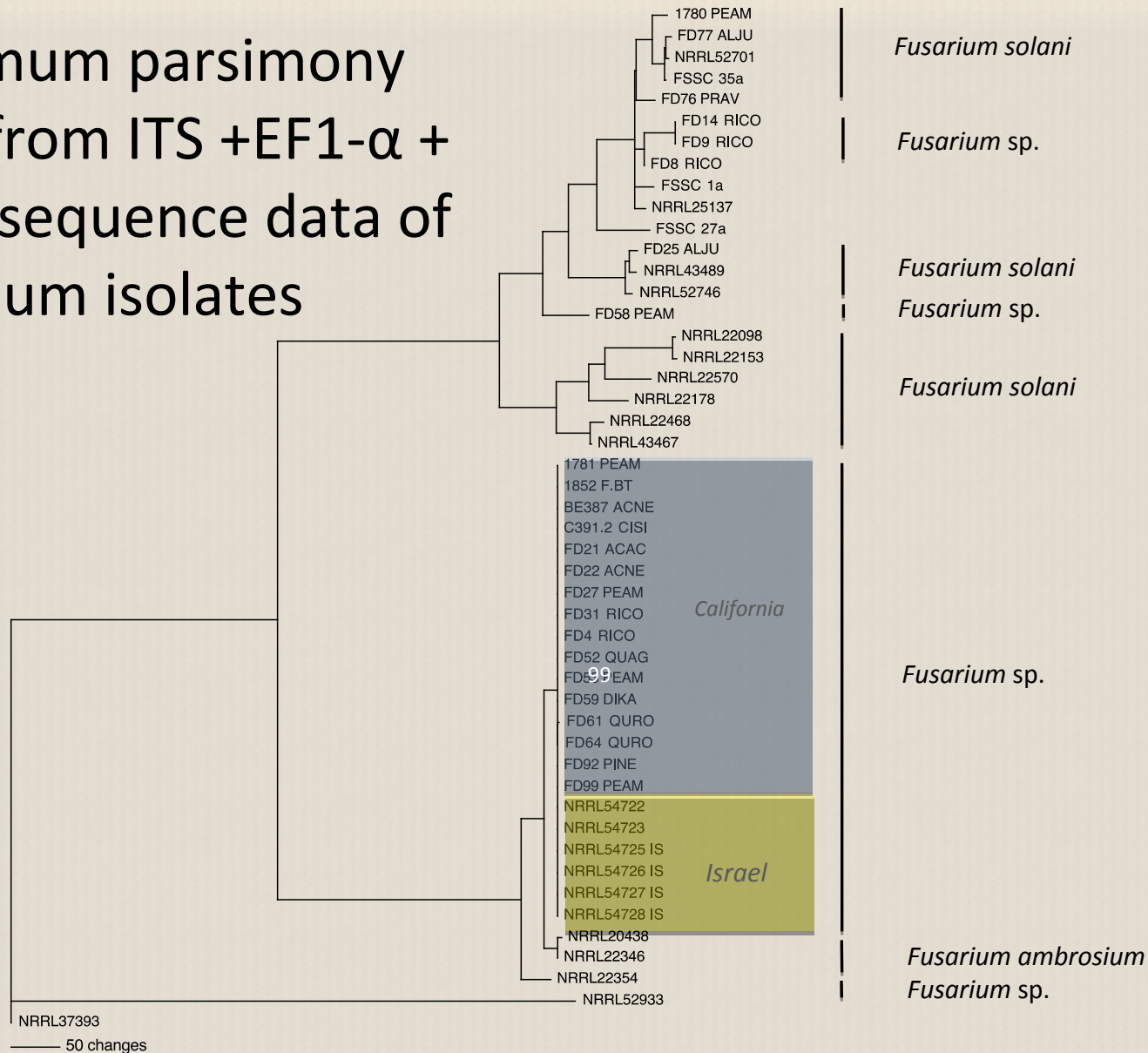
An Asian ambrosia beetle *Euwallacea fornicatus* and its novel symbiotic fungus *Fusarium* sp. pose a serious threat to the Israeli avocado industry

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Photo by Dr. Zvi Mendel, Dept. of Entomology, Bet Dagan, Israel

Maximum parsimony
tree from ITS +EF1- α +
RPB2 sequence data of
Fusarium isolates



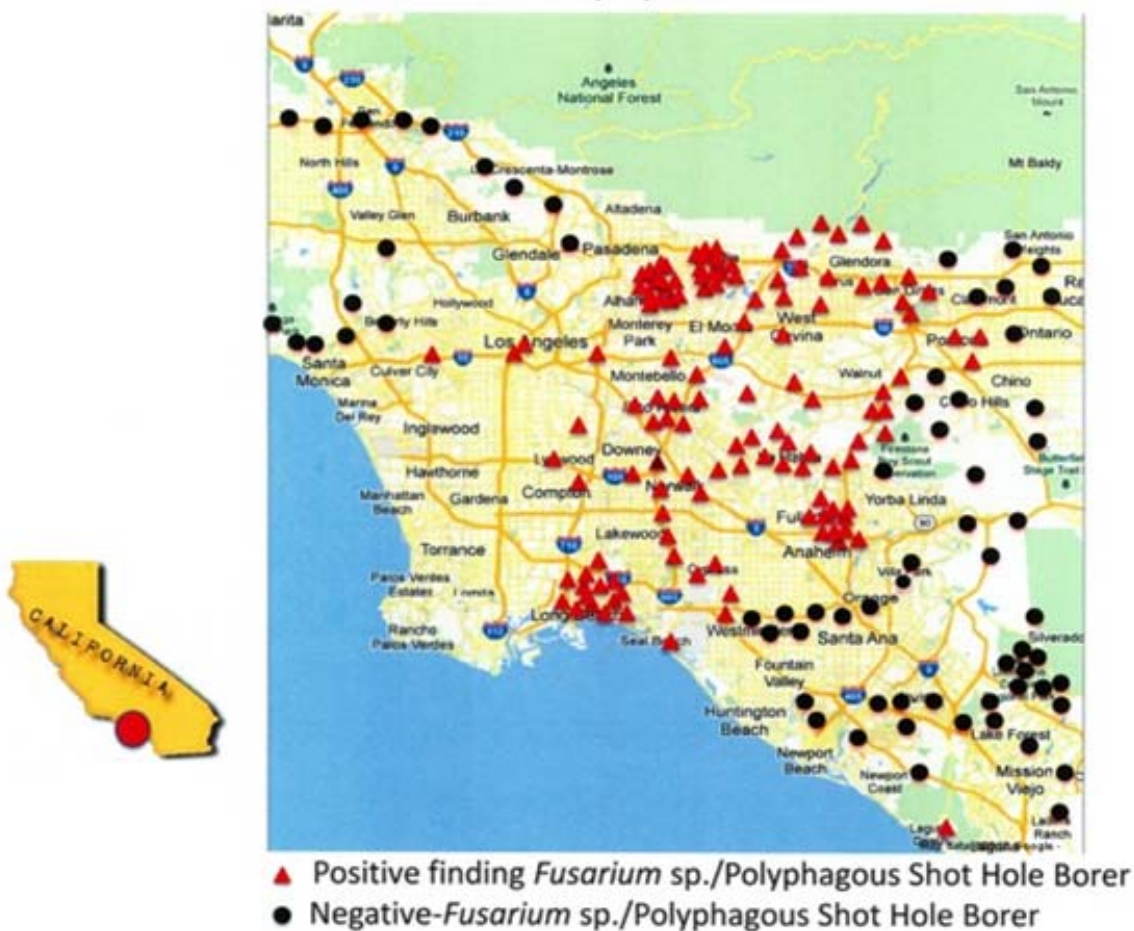


Fusarium sp.



Control

Known distribution of *Fusarium* dieback/ Polyphagous shot hole borer in southern California 08/21/2012



Symptoms on Castor Bean (*Ricinus communis*)



Hosts in California



Box Alder
(*Acer negundo*)



Hosts in California



Coast live oak
(*Quercus agrifolia*)

Symptoms on avocado (cv. Hass)



Symptoms on avocado (cv. Hass)



Symptoms on avocado (cv. Hass)



What to look for?



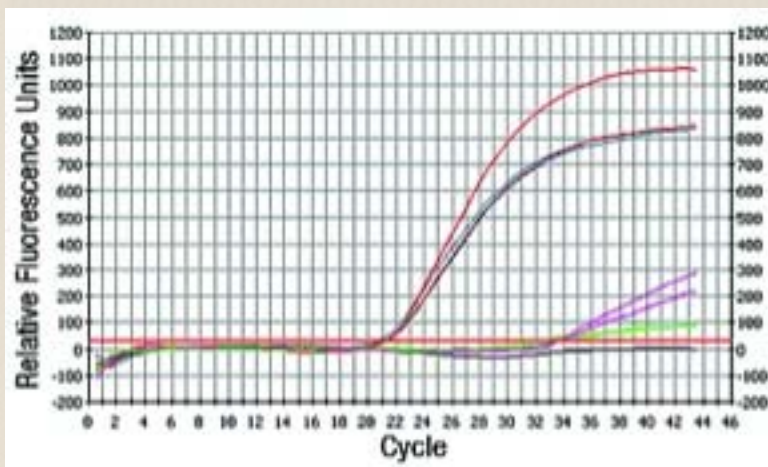
What not to look for



What not to look for



Detection of *Fusarium* sp. directly from plant material using Quantitative Real Time PCR

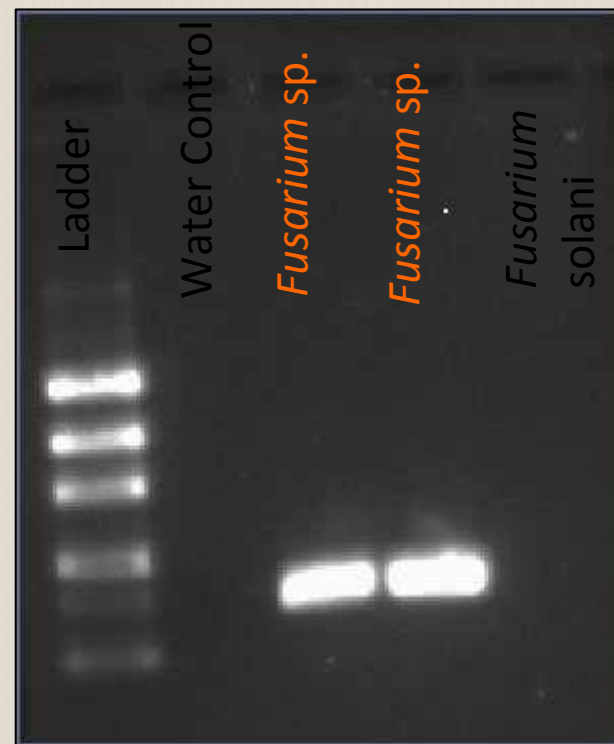


Forward: ACGTGATTGACCACAAAC

Reverse: CAGCGACATACCAATGAC



188 bp



Conclusion

- Fusarium dieback (FD) is a new disease of avocado and landscape trees caused by new *Fusarium* sp. vectored by an ambrosia beetle.
- Los Angeles and Orange counties thus far are infested with FD/PSHB in California
- Symptoms of FD on Box elder, castor bean, avocado and English oak are more severe than on other hosts.



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