13.13 Navelina ISA 315 sweet orange: A CVC tolerant cultivar

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The citrus variegated chlorosis (CVC), caused by Xylella fastidiosa subp. pauca, is a serious disease in Brazil. The use of resistant cultivars is highly recommended to allow a long-term coexistence with the disease. From 1990 through 2007, 503 sweet orange cultivars were challenged against X. fastidiosa (Yamamoto et al., 2005; Souza et al., 2005). The Navelina ISA 315 cultivar - a clone recovered by in vitro culture of undeveloped ovules - was introduced from Italy for CVC resistance studies, and showed to be infected by cachexia during indexing procedures. Plants were established in two field blocks in 2000 (block 1) and 2001 (block 2) with a total of three and eight trees. One and four plants were inoculated by approach grafting of CVC infected nursery trees, respectively. Inoculation was performed in the field nine to eleven months after planting. Nursery trees of the cultivar were inoculated with bacterial suspension in 2006 and 2007. Twenty sweet orange trees showing severe symptoms of CVC were topworked with Navelina ISA 315 with a total of 248 buds grafted in 2007. Isolation of the bacteria infecting the original field trees and the topworked ones was performed. From 2000 through 2007, the presence of typical symptoms of the disease in the trees was evaluated visually twice a year. PCR tests using specific primers for X. fastidiosa were conducted for all trees in the two blocks and for the nursery and the topworked ones. None of the trees challenged showed symptoms despite the positive PCR results and recovery of bacteria from the topworked trees (Stuchi et al., 2007). In February 2008, 69/218 topworked branches showed symptoms. However, the eleven trees in field showed no leaf and fruit symptoms. The behavior of Navelina ISA 315 could be explained by a somaclonal variation inducing tolerance to CVC or by the influence of Cachexia on CVC symptoms expression or by some endophyte such as Curtobacterium flaccumfaciens colonizing the cultivar and inhibiting the development of X.fastidiosa as reported previously (Araújo et al., 2002; Lacava et al. (2004). The same approach is being considered to find resistance against HLB and 553 sweet oranges available in two Brazilian germplasm collections will challenged in field and greenhouse conditions.

