

Pome Fruits—Pesticide Resistance

Twospotted Spider Mite in Pear

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Acaricide resistance development in field populations of the twospotted spider mite (TSM), *Tetranychus urticae* Koch, was measured over a 5-year period following varying use patterns of an organotin (OT) acaricide (cyhexatin or fenbutatin oxide) and the ovicide hexythiazox. Use patterns included consecutive applications of the OT and of hexythiazox, within-year alternation of the two acaricides, between-year rotation and consecutive use of a combination of both acaricides used at 1/2 rates. Each of the different use patterns was applied twice per season. Field failure of the consecutive OT programs was measured following the 5th treatment and confirmed in laboratory bioassays. Incipient field failure of the consecutive hexythiazox program was indicated by both high field densities and greatly elevated LC₅₀ values following the 10th field application. There was no indication of resistance development by TSM following 10 applications of the combination of OT and hexythiazox at 1/2 rates. Also, no field failure was measured using either the between- or within-year acaricide rotation program which through the 5th year had received 4 to 6 treatments of each acaricide. Resistance development to the OT used in a consecutive manner was accompanied by resistance to hexythiazox, but resistance development in the consecutive hexythiazox plot did not exhibit cross tolerance to the OT.