Phytotoxicity of Fresh Commodity to New Alternative Fumigants

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Chemical fumigation has been the method of choice due to ease of use, relatively rapid treatment times and low cost for insect disinfestation of fresh commodities. The impending loss of methyl bromide, however, would eliminate it as the common chemical fumigant utilized for this purpose. Although nonchemical treatments show promise in the disinfestation of some fresh commodities, the treatments require longer times than methyl bromide and also require major investment for the construction of new treatment facilities. Thus, finding acceptable new chemical fumigants might offer a less expensive and more practical alternative to methyl bromide. Carbonyl sulfide (COS), a compound naturally present as an abundant form of sulfur in the atmosphere, has been used as an insecticide and for postharvest commodities. We have tested COS as a quarantine treatment for the disinfestation of lemons. Another potential replacement fumigant that has shown promise is methyl iodide (MI). Both COS and MI appear to be good new alternative fumigants and we have initiated a program to test these fumigants on selected major postharvest fresh commodities. The effects on quality and phytotoxicity of the treated commodities will be discussed.