UPDATE ON CLYLINDERIZED PHOSPHINE RESEARCH AT USDA-ARS: KEY EFFICACY, RESIDUE, AND REGULATORY DATA

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Abstract. Cylinderized formulations of phosphine (i.e., Vaporphos® & Ecofume®) satisfy the critical need that many specialty crop industries have for a postharvest methyl bromide alternative. However, cylinderized phosphine formulations are not registered for use on the majority of specialty crop types that are economically impacted by quarantine insect pests. Notable exceptions include: of fresh citrus, leafy greens, and tree nuts. Keen interest has been expressed by the specialty crop industry as a whole to have other fresh/perishable fruits, particularly valuable exports crops, added to cylinderized phosphine label(s).

Cylinderized phosphine fumigations are toxicologically efficacious when conducted at cold storage temperatures < 42°F, which helps to preserve fruit quality, particularly for highly perishable fruit such as sweet cherries, berries, and stone fruit. Research is being conducted at USDA-ARS-SJVASC to develop cylinderized phosphine fumigations at cold storage temperatures with as little treatment time as possible; considerations specific to specialty crop industries are will be generalized and results from efficacy studies on key pests briefly discussed. Recent data will be presented as related to residues that result from the fumigation of specialty crops with cylinderized phosphine.