TRAPPING THE HAM MITE, *TYROPHAGUS PUTRESCENTIAE*, WITH A FOOD BAIT: TOWARD A MONITORING TOOL FOR IPM

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Tyrophagus putrescentiae is the most serious arthropod pest of southern dry cured hams in the USA. We developed a trap for use in integrated pest management (IPM) that consists of a 90 mm disposable plastic Petri dish that is painted black on the entire outer surface. Around the sidewall of the dish are eight evenly spaced holes, approximately 0.5 mm in diameter, at 2 mm above the bottom of the dish for entry of responding mites. The lure or bait, consisting of a 10 mm high by 25 mm diameter circular plug of mite rearing diet gelled in agar, is placed inside the center of the trap. Mites respond to the baited dishes, enter the holes in the side wall, and feed on the diet plug where they also mate and lay eggs. Laboratory studies confirmed that traps baited with food diet were very effective at detecting mites compared to unbaited traps. During 2012-2013 we monitored mite populations in three commercial ham curing/aging facilities using 20 traps distributed evenly throughout the buildings for consecutive one-week periods. Mite numbers in traps varied from zero to several hundred in each week. Consecutive weekly trapping suggested a seasonal variation in mite populations, and the spatial distribution of traps with or without mites demonstrated that certain areas of a given facility consistently had higher mite activity than other areas. Mite numbers in traps confirmed that fumigation in certain circumstances caused severe reduction in mite populations, and showed that mites would slowly increase in numbers and activity following fumigation.

Recent work has focused on the sensitivity for mite detection with these traps and the role of environmental factors such as temperature, relative humidity, trap placement relative to structural features, proximity of traps from a source of mites and general trap design on trap efficacy. The standard trap was deployed in four retail facilities close to KSU, including a pet store, an organic grocery store, a large "big box" department store and a farm supply store in order to have a near-by study site. Mites were detected only at the farm supply store. Of twenty traps evenly spaced throughout the retail area, mites were consistently trapped only in one specific area. Traps were also deployed in three small rooms at our KSU laboratory in which we released an open colony of mites at one end of the floor and traps were arranged in three consecutive 1 m intervals away from the food source, either along one side wall or in the center of the floor. Results suggest that mites can be detected 3 m from a population source within minute to hours from the time of deployment and that room edges may be important for orientation of mites to traps. Experiment are planned that will evaluate various commercial designs of stored product beetle traps that should also capture mites. Simple laboratory rooms and the farm store with a localized mite population will be used to correlate mite trap counts with a direct measures of mite density derived from defined floor samples of mites and dusted collected in a defined area. Monitoring data of *T. putrescentiae* populations using traps will be important information to aid in IPM decision-making.