EFFICACY OF FENOXYCARB (25 WP), AN INSECT GROWTH REGULATOR, ON 1ST GENERATION CODLING MOTH CONTROL IN WALNUT

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ABSTRACT

Fenoxy carb (25 wp), an insect growth regulator, was tested for efficacy as a substitute for Guthion 50 wp in control of 1st generation codling moth. Fenoxy carb 25 wp applied once at 60 day degrees is as effective as Guthion applied at 1/2 inch nut size.
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INTRODUCTION

First generation codling moth management is a major component in ultimate success of season long management of this pest. It is important that codling moth populations be maintained at low levels at season’s start, by either previous season’s control programs and/or by chemically controlling 1st generation. High initial populations of codling moth, left uncontrolled, result in subsequent generations that are difficult to manage.

Guthion provides the most effective control of high populations of 1st generation codling moth due to its long residual activity. Its use, however, disrupts beneficial insect activity in the orchard resulting in secondary pest outbreaks, e.g. walnut aphids and spider mites. Alternative, more selective chemical pesticides are needed in the codling moth management program.

Insect growth regulators (IGRs) offer promise in avoiding disadvantages of long residual, broad spectrum insecticides such as Guthion; they are generally considered selective to target pests, safe to beneficials, safe for humans, plants and the environment. This is report of test results from one such IGR, Fenoxycarb (25 wp) for efficacy against 1st generation codling moth in walnut.

PROCEDURE

A mature Ashley walnut orchard in Visalia, California, with a history of moderate codling moth activity, was selected for the experiment. Codling moth pheromone traps were placed in the test area 17 March, once an indicator trap in the orchard caught the first moth. The first sustained moth catch occurred in the test area 23 March and day degrees were accumulated from that date to determine pest development. Fenoxycarb (25 wp) @ .09 lb ai/ac was applied either once, prior to the start of any first generation codling moth egg hatch (26 March @ 60 day degrees) or twice (26 March and 23 April, @ 60 and 300 day degrees respectively).

Efficacy of these treatments was compared with Guthion (50 wp) @ 1.5 lb ai/ac, applied at 1/2 inch nut size (23 April, 300 day degrees) and an untreated control. The treatments were replicated 5 times, (as individual trees), and plots configured into a randomized complete block design. Efficacy was determined by counting infested nuts that drop from the tree throughout the first generation, a phenomenon characteristic of nuts infested by first generation codling moth larvae. Walnut aphids were monitored on treated and untreated trees throughout the experimental period.
RESULTS AND DISCUSSION

Adult codling moth trap catches for the first generation are graphically presented in Fig. 1. Fenoxycarb (25 wp) was applied at 60 day degrees (26 March) prior to the earliest any egg hatch could occur and 300 day degrees (23 April - @ 1/2" nut size), normal treatment timing for conventional insecticides. Guthion was applied at 1/2 inch nut size, just following peak adult flight activity.

One and two applications of fenoxycarb (25 wp) provided excellent control of first generation codling (see Fig. 2). Efficacy was equivalent to a conventional Guthion (50 wp) treatment at 1.5 lb ai per acre. Walnut aphid populations remained low throughout the experiment and no differential levels were measured between treatments. It is suspected that the walnut aphid parasite, Trioxys pallidus, moved to treated trees from adjoining untreated trees and parasitized any developing aphid population within the experiment; usually walnut aphids develop damaging populations following Guthion treatment.

It appears from this initial, and limited, experiment, Fenoxycarb (25 wp) has considerable promise as a substitute for Guthion in a chemical codling moth management program for English walnuts in California.