EFFICACY OF RH-5992, AN INSECT GROWTH REGULATOR,
ON 1ST GENERATION CODLING MOTH CONTROL
IN WALNUT

G. Steven Sibbett, R. Smith

INTRODUCTION

Controlling 1st generation codling moth is a major component in ultimate success of a season long management program for 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 the current season’s 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. Here we report test results from one such IGR, Rhom & Haas’ RH-5992 (an IGR that interferes with the normal molting process in Lepidoptera) for efficacy against 1st generation codling moth in walnut.

PROCEDURE

A mature Ashley walnut orchard in Visalia CA, with a history of codling moth activity, was selected for the experiment. Codling moth pheromone traps were placed in the test area 25 March, once an indicator trap in the orchard caught the first moth. The first sustained moth catch occurred in the test area 1 April and day degrees were accumulated from that date to determine pest development. RH-5992 was applied at the start of 1st generation codling moth egg hatch (19 April, 200 day degrees) at a rate of 1/4 and 1/2 lb ai per acre. Efficacy of these treatments were compared with Guthion applied at 1/2 inch nut size (29 April, 300 day degrees) and an untreated control. The treatments were replicated 6 times with individual trees and configured into a randomized complete block design. Efficacy was determined by periodically counting infested nuts that drop from the tree throughout the first generation, a phenomenon characteristic of infestation from first generation codling moth larvae. Walnut aphids were monitored on treated and untreated throughout the experimental period.
RESULTS AND DISCUSSION

Adult codling moth trap catches for the first generation are graphically presented in Fig. 1. RH-5992 was applied at 200 day degrees (19 April) the earliest that predicted egg hatch should occur. Guthion was applied at 1/2 inch nut size (29 April), just following peak adult flight activity.

RH-5992 provided excellent control of first generation codling (see Fig. 2). Efficacy was equivalent to Guthion at 1/4 lb ai per acre and exceeded Guthion at 1/2 lb ai per acre. Walnut aphid populations remained low throughout the experiment and no differential levels were measured between treatments.

It appears from this initial, and limited experiment, RH-5992 has promise in the chemical codling moth management program for walnuts.
Figure 1

EFFICACY OF RH-5992 IN
1ST GEN. CODLING MOTH CONTROL
Ashley Walnut, Visalia CA - 1991

Avg. Tot. CM Drops/Tree

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Avg. CM Drops/Tree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>6</td>
</tr>
<tr>
<td>1/4 # al egghatch Guth. 1.5</td>
<td>2</td>
</tr>
<tr>
<td>1/2 # al egghatch</td>
<td>1</td>
</tr>
<tr>
<td>1/2&quot; nut</td>
<td>2</td>
</tr>
</tbody>
</table>

Blain Farming Co.
Figure 2

EFFICACY OF RH-5992 IN 1ST GEN. CODLING MOTH CONTROL

Ashley Walnut, Visalia CA - 1991

Moths per Trap

Date


Blain Farming Co.