

Electronic Mint Pest Alert Newsletter to Promote Optimal Application of Coragen® to Control Mint Root Borer, Cutworms, Armyworms and Loopers

Marvin Butler, Ralph Berry, Darrin L. Walenta,
Nicole Anderson, Clare Sullivan, Katie Ralls and Megan Buck

Abstract

An electronic newsletter was developed for the peppermint production regions in Oregon to assist growers and fieldmen to consider control of mint root borers, cutworms, armyworms and loopers during the growing season prior to crop damage. The newsletter was designed to help with timing of this new insecticide application strategy and to be used in conjunction with existing field monitoring/scouting programs. Extension Agents from the Willamette Valley and Union County were valuable cooperators and provided scouting services to confirm insect development model accuracy. A formal survey of those receiving the newsletter indicated 91 percent considered the weekly newsletter to be either very useful or somewhat useful.

Introduction

Mint root borer is one of the more serious insect pests of commercial peppermint in the Pacific Northwest. In some regions, cutworms are considered an equally important pest, with the variegated cutworm being the most common species causing the most crop and economic damage. Additional pests include loopers and armyworms.

Coragen® provides a new approach to control these insect pests prior to crop damage in an environmentally friendly manner. The traditional approach has been to apply Lorsban Advance® in the fall which requires irrigation to move the product into the soil for larval control. In contrast, Coragen® provides control of eggs and first instar larvae feeding on foliage prior to dropping to the ground to enter the rhizomes. The life cycles of these three pests, based on developmental models, offer a window of opportunity to provide control of more than one target pest with a single application of the new insecticide.

This new application timing strategy timed earlier in the growing season provides an opportunity for growers and industry representatives to consider application timing for control of mint root borers, cutworms and loopers before the pests cause damage during the growing season. The objective of this project was to provide an electronic Pest Alert Newsletter to assist growers, fieldmen and industry representatives in maximizing effectiveness of Coragen® application for control of mint root borer eggs and larvae, cutworms and loopers in peppermint production areas throughout Oregon.

Methods and Materials

Regional cooperators on the project were Darrin L. Walenta (Union Co.), Nicole Anderson (N. Willamette Valley) and Clare Sullivan (S. Willamette Valley), in addition to the involvement of Ralph Berry, Entomology Professor Emeritus. Electronic templates for the newsletter were developed by Katie Ralls for the three regions: Willamette Valley, northeastern Oregon and

central Oregon. An electronic contact list was developed which included recent Oregon mint growers who paid the mint assessment and fieldmen for each region. Weather stations were identified to represent each production region and utilized temperature data from those stations to generate insect pest degree day development models (source: Integrated Pest Management on Peppermint Program). AgriMet weather stations included: Corvallis (Willamette Valley), Imbler and Baker Valley (N.E. OR), Madras and Powell Butte (central Oregon). Links to AgriMet weather station data is available at: <http://www.usbr.gov/pn/agrimet/>.

Degree day development models for mint root borer and variegated cutworm were run weekly by Megan Buck (student intern) using the models in IPMP from June 27 through July 25 and August 29 through September 5, with results provided through the weekly electronic Mint Pest Alert Newsletter. Representative cooperators provided onsite confirmation of model accuracy for each region. Two commercial fields from two mint production areas in each region were used for field scouting activity. Pheromone traps were used for mint root borer adults and sweeps were used for cutworms. Soil samples were used for mint root borer larvae assessment in September. There was general consensus from data across regions that the insect development models are reliable.

A newsletter user survey was developed to evaluate the project with assistance from Shawn Morford, previous OSU Extension Agent with expertise in evaluating program impact. The survey was designed to assess how the Pest Alert newsletter affected grower and fieldmen knowledge and pest management decisions, as well as to identify areas of newsletter strengths and obtain recommendations for improvement. The survey was conducted by phone between September 15th and 25th. For those who were not successfully contacted by phone, two follow-up email requests were sent out in an effort to gather as much information as possible via an online survey tool (SurveyMonkey).

Results and Discussion

The newsletter was sent to 88 people throughout the season and 30 responded to the survey, either by phone or via online. The respondents were between the ages of 31-66+, with the majority being between the ages of 45-65 and farming more than 100 acres of mint. The majority of survey respondents (77%) recalled receiving the mint pest newsletter. Ninety-one percent rated the newsletter as useful, with 43 percent saying "very useful" and 48 percent "somewhat useful." Insect pest importance ratings (across all mint production regions) indicated mint root and cutworms were the highest priority, followed by loopers and armyworms. Some production areas indicate cutworms as being the highest priority followed by mint root borer. Although only one respondent indicated they switched from using Lorsban Advance® this growing season (some switched earlier), the vast majority of respondents appreciated receiving the newsletter and indicated their knowledge of the subject matter increased as a result. In general, comments by respondents indicated that they liked receiving information via the newsletter in addition to relying on their fieldmen for onsite recommendations.

Acknowledgements

The primary author would like to thank the Oregon Mint Commission for their support of this project, Ralph Berry for his expertise and interest in the project, and Darrin L. Walenta, Nicole Anderson and Clare Sullivan for their cooperation and active participation. Thanks also to Katie Ralls, Megan Buck and Shawn Morford for their technical expertise as willing accomplices.