



Pest e-alerts



Entomology and Plant Pathology, Oklahoma State University
127 Noble Research Center, Stillwater, OK74078
405.744.5527

Vol. 12, No. 3

<http://entopl.okstate.edu/Pddl/>

Feb 1, 2013

Alfalfa Weevil Populations and Comments on Resistance

Phil Mulder and Kelly Seuhs,
Extension Entomologist and OSU Extension Associate



In an earlier news release we discussed alfalfa weevil egg populations for January (located in the attached table) and suggested that numbers were relatively low with moderate viability of those eggs (68%). Two locations (Grady and Tillman counties) had extremely high egg populations. An update on degree days through January 31, 2013 is presented in the last column of Table 1 and shows that in spite of current colder conditions, the higher temperatures earlier have resulted in a few locations nearing the 150 degree day point. Remember this level of degree days represents the point that serves as an indicator for growers and consultants to begin scouting for larvae. Although precipitation totals across the state remain low, some areas have experienced showers during the last front that came through. This rainfall will definitely help the alfalfa to grow and usually helps in suppressing aphid populations, particularly when the cold is accompanied by wet conditions. Currently, even with the moisture received last week, most of the state is still in an extreme drought with well below average rainfall.

I want to reiterate what was said in the last news release, that we must remain vigilant; early 2011 was a perfect storm for insect (aphid) development while a mild and dry 2012 showed an increase of alfalfa weevil populations. Also, in 2011, above average temperatures and below average rainfall equated to minimal to no alfalfa growth occurring in the spring allowing an explosion of insect populations prompting multiple sprays for control.

I also want to address concerns over alfalfa weevil resistance. Two adjoining states issued special local needs exemptions for application of materials in the fall of 2011. The strategy was to help control adult alfalfa weevils in the fall to reduce populations going into the winter. Unfortunately, the timing of these applications has not been worked out precisely. We don't have any thresholds that tell us when adult activity occurs or peaks. During warm falls, it is not uncommon to find active, very young, larval populations, but we don't know how or if these late season populations can survive. In addition to this, toxicologists from Kansas State have conducted assays on field collected larvae during 2011 and 2012 and did NOT detect anything alarming. Unfortunately, it is difficult to develop a baseline for resistance if you cannot be assured of the predisposition of the current populations in the field. To my knowledge, no one in the region has a laboratory strain of weevil that could be considered 100% susceptible. Such a population would be necessary to confirm and decipher any levels of resistance from field-collected population. Densities of weevils over the last two seasons have definitely increased and control for weevils and/or other organisms (aphids) has been initiated earlier during this same time frame. I feel strongly that poor control in many cases is a consequence of poor timing, inappropriate choices of insecticides, application methods, or simply high population pressure. We will be initiating studies this year to look carefully at some of these variables that may be contributing to poor control efforts throughout the region. Stay tuned in subsequent issues of Pest e-Alerts.

Dr. Richard Grantham
Director, Plant Disease and Insect Diagnostic Laboratory

Oklahoma State University, in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, Title IX of the Education Amendments of 1972, Americans with Disabilities Act of 1990, and other federal laws and regulations, does not discriminate on the basis of race, color, national origin, gender, age, religion, disability, or status as a veteran in any of its policies, practices or procedures. This includes but is not limited to admissions, employment, financial aid, and educational services.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Robert E. Whitson, Director of Oklahoma Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President, Dean, and Director of the Division of Agricultural Sciences and Natural.

Table 1. Alfalfa weevil egg populations for January, 2013. Degree days through January 31, 2013 are presented in the last column.

| County | January 2013 | January 2013 % Viable | January 2012 | January 2012 % Viable | January 2007 | January 2007 % Viable | January 2006 | January 2006 % Viable* | January 2005 | January 2005 % Viable* | Degree Days (2013) |
|--------------|--------------|-----------------------|--------------|-----------------------|--------------|-----------------------|--------------|------------------------|--------------|------------------------|--------------------|
| Grady | 401.2 | 58 | 33.2 | --- | .8 | --- | 56.0 | --- | 43.6 | --- | 104.9 |
| Kingfisher | 36.4 | --- | 77.6 | 82 | 48.0 | --- | 82.0 | --- | 162 | 94 | 87.0 |
| Payne | 4.0 | --- | 69.6 | 72 | 56.4 | 70 | 189.6 | 45 | 338.8 | 90 | 109.2 |
| Pottawatomie | 22.0 | --- | 4.8 | --- | 14.8 | --- | 134.8 | 41 | 218 | 82 | 127.0 |
| Tillman | 273.6 | 69 | 54.4 | --- | 2.0 | --- | 40.8 | --- | 54 | --- | 113.3 |
| Washita | 31.2 | --- | 74.4 | 76 | 3.6 | --- | 130.0 | 45 | 57.2 | 93 | 99.5 |
| Garvin | 59.2 | --- | 52.4 | --- | 0.0 | --- | 111.6 | 76 | 113.2 | 87 | 146.1 |
| Rogers | 26.0 | --- | 17.6 | --- | | | | | | | 116.4 |
| Major | 77.2 | 81.5 | 74.8 | --- | | | | | | | 88.6 |
| Alfalfa | 72.4 | 64 | 198.0 | 75 | | | | | | | 71.6 |

**Means 100.5 65.68 20.3 104.3 130.4 106.36

--- No viabilities in a specific county means that egg numbers recovered were insufficient to conduct an assessment.

** Means within each year, represent all areas sampled, not simply those depicted.