Leafhopper Newsletter

August 2, 2016

University of California
Agriculture and Natural Resources

REGIONAL MONITORING EFFORT

This season we are monitoring the development of Virginia creeper leafhopper (*Erythroneura ziczac*) and Western grape leafhopper (*Erythroneura elegantula*) populations.

Mendocino County: We are monitoring 7 sites, located in McDowell Valley, Hopland, Ukiah/Talmage, Redwood Valley and Potter Valley. Virginia creeper leafhopper (VCLH) is currently not found in Redwood Valley or Potter Valley. The Hopland/McDowell sites are monitored by Lucia Varela and all other Mendocino County sites by Ryan Keiffer.

Lake County: In collaboration with local Pest Control Advisors and Vineyard Managers Broc Zoller, Bill Oldham and Randy Krag we began on May 27 to monitor 5 sites in Lake County, located in the Upper Lake, Scotts Valley, Finley, Kelseyville and the Red Hills areas. This will be a simplified monitoring effort that includes weekly nymph counts and monthly evaluations of egg deposition and parasitism rates.

Project Website: Additional information about the Virginia creeper leafhopper research program in Mendocino and Lake County can be found on our project website (http://ucanr.edu/sites/vclh).

MENDOCINO COUNTY MONITORING

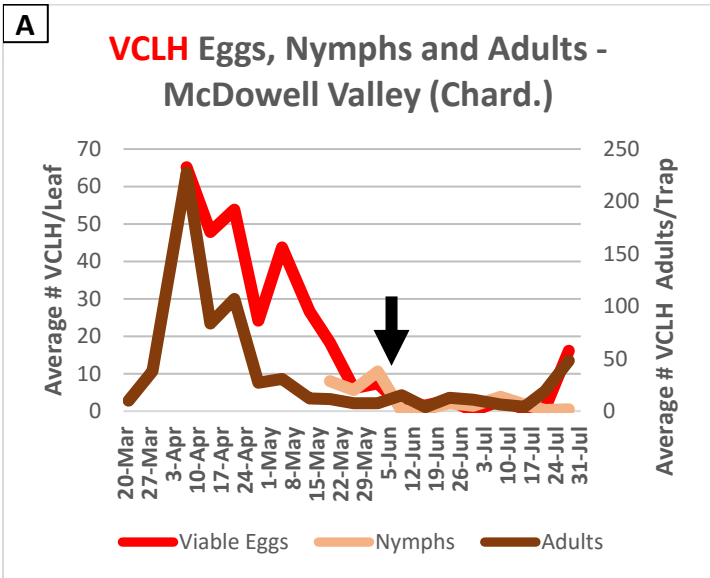
VCLH and WGLH Adults, Viable Eggs and Nymphs

Densities of VCLH and WGLH adults are increasing at all sites in Mendocino, with the exception of "Hopland2" where WGLH adults slightly declined. VCLH and WGLH nymph densities have also increased at all sites. A majority of these nymphs are 1st instar (stage), which means they are likely from the third brood.

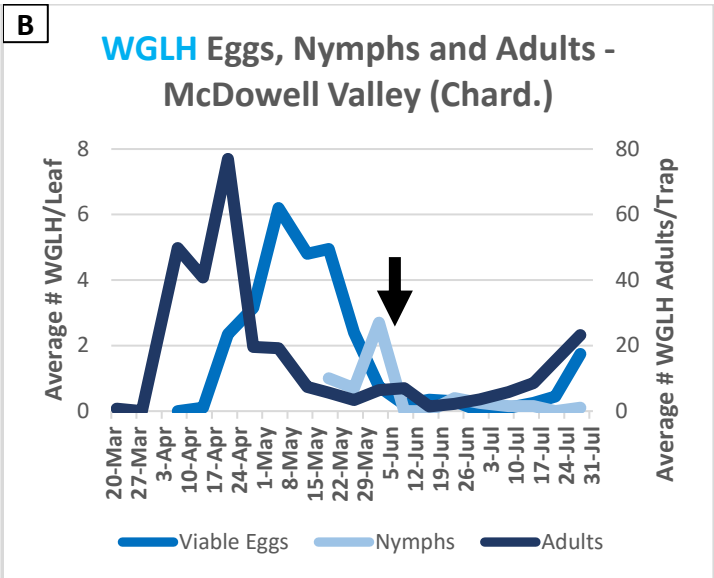
Nymph populations were reduced at "McDowell Valley", "Hopland1", "Talmage1", "Talmage2" and "Redwood Valley" due to insecticide applications (arrows in Fig. 1 indicate spray date). OMRI certified materials were used at the "McDowell Valley", "Hopland1", "Talmage1" and "Redwood Valley" sites, but not at the "Talmage2" site. However, we are now starting to see a gradual increase in populations at these sites.

University of California
Agriculture and Natural Resources

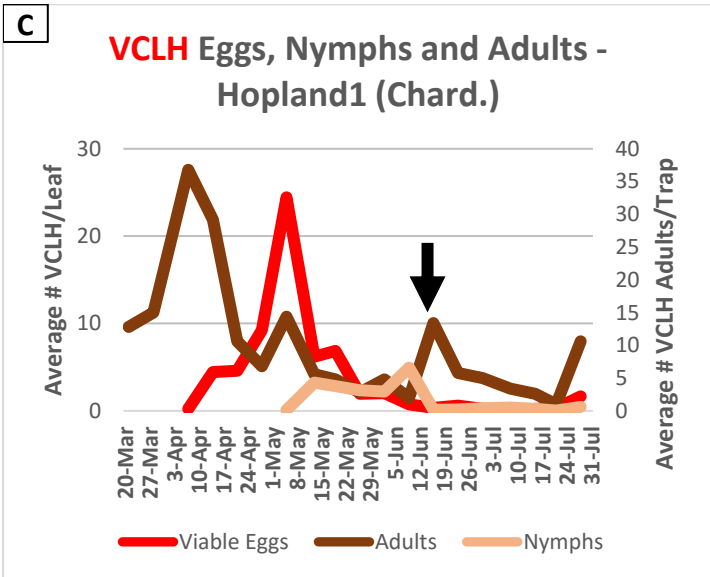
A



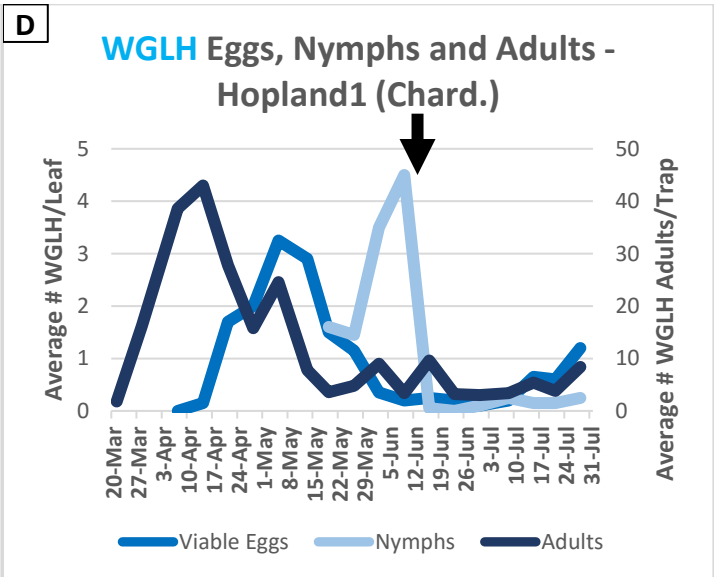
B



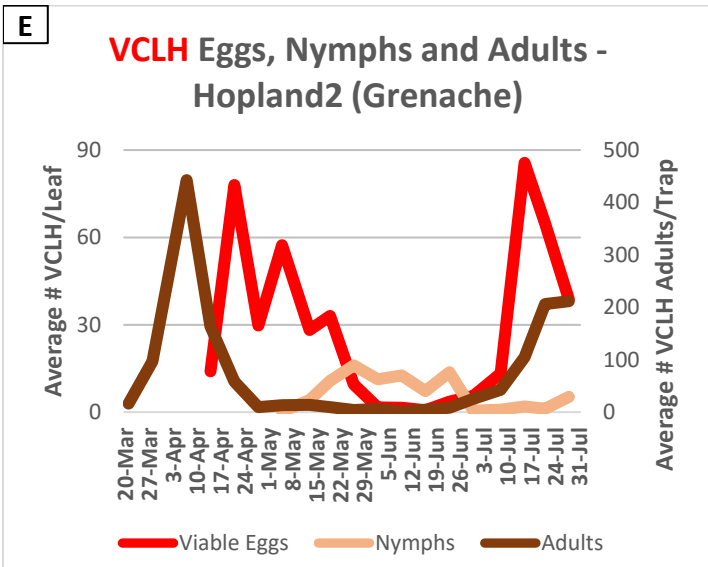
C



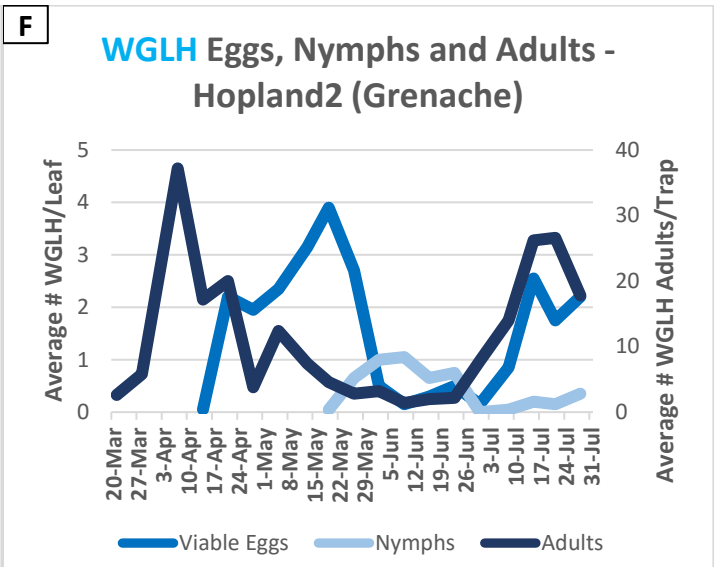
D



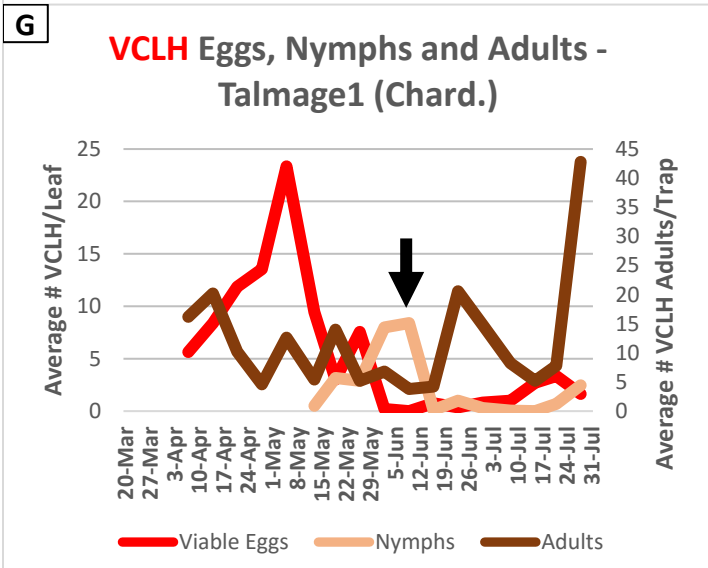
E


VCLH Eggs, Nymphs and Adults - Hopland2 (Grenache)
Average # VCLH/Leaf
Average # VCLH Adults/Trap
Viable Eggs
Nymphs
Adults

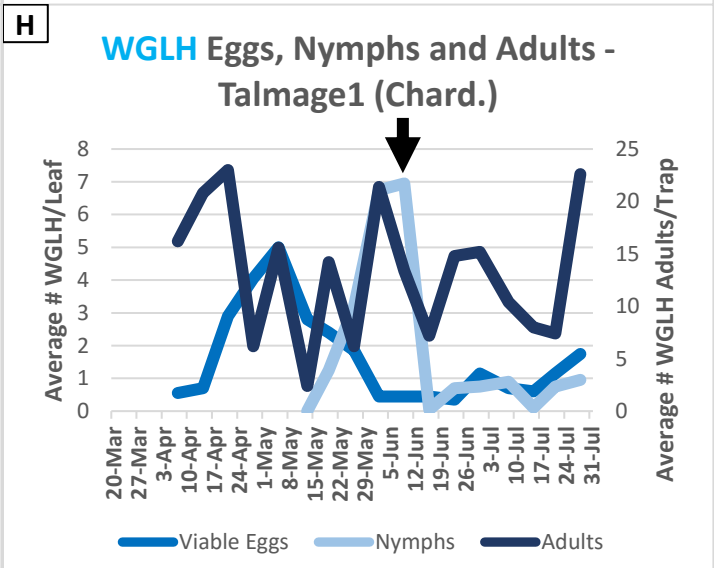
F


WGLH Eggs, Nymphs and Adults - Hopland2 (Grenache)
Average # WGLH/Leaf
Average # WGLH Adults/Trap
Viable Eggs
Nymphs
Adults

G


VCLH Eggs, Nymphs and Adults - Talmage1 (Chard.)
Average # VCLH/Leaf
Average # VCLH Adults/Trap
Viable Eggs
Nymphs
Adults

H


WGLH Eggs, Nymphs and Adults - Talmage1 (Chard.)
Average # WGLH/Leaf
Average # WGLH Adults/Trap
Viable Eggs
Nymphs
Adults

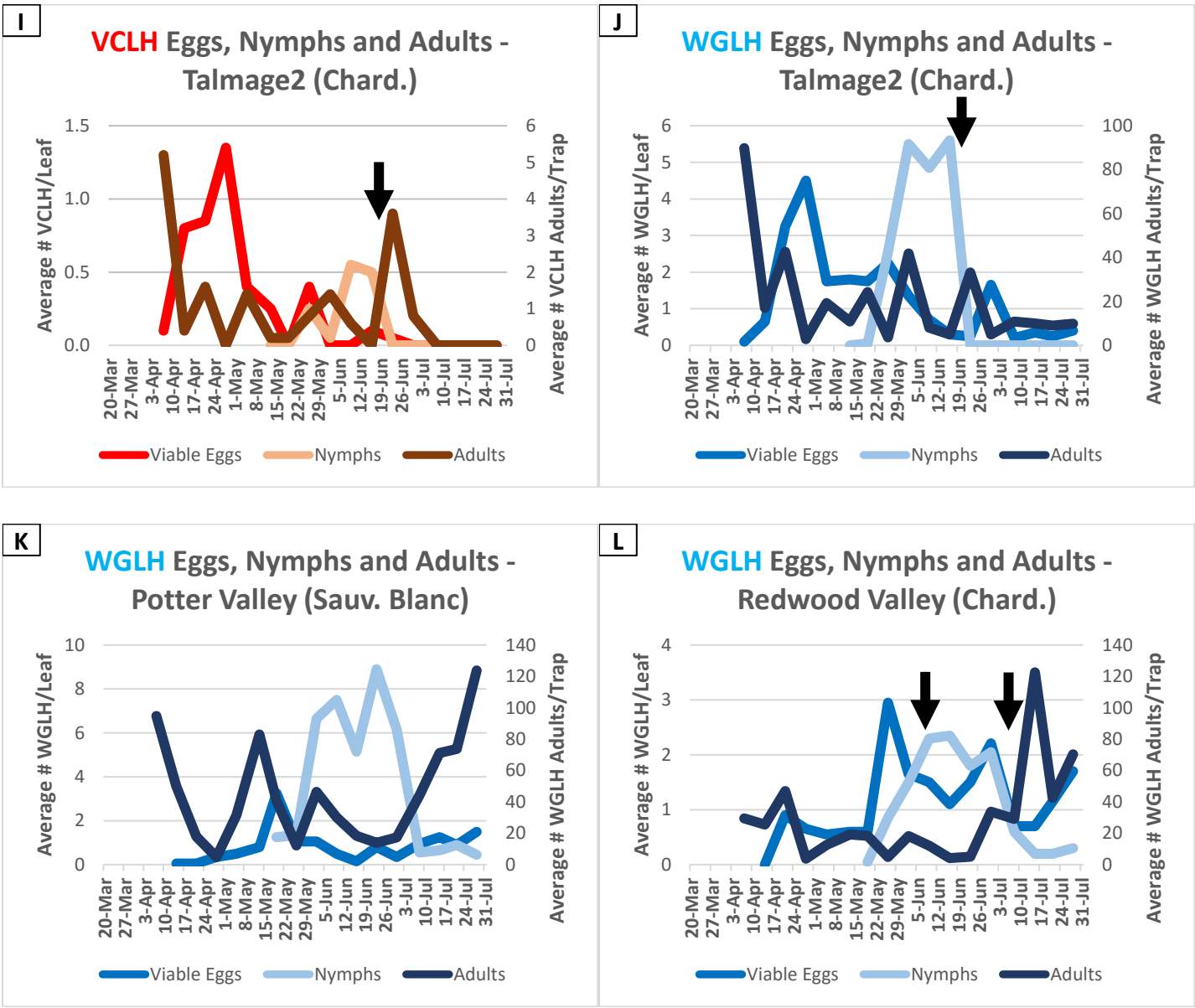


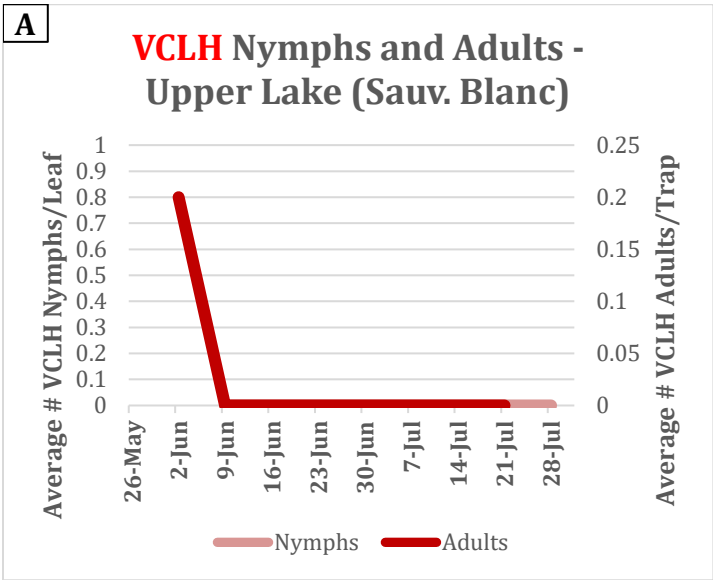
Fig. 1. Average number of leafhopper adults, viable eggs and nymphs graphed by leafhopper species (VCLH and WGLH) in seven vineyards in Mendocino County. Leafhopper populations continue to follow trends similar to what was seen earlier in the season, with high VCLH populations in the Hopland and McDowell Valley areas and high WGLH populations in the Redwood Valley and Potter Valley areas. *Primary axis (left) is scaled for viable egg and nymph densities, secondary axis (right) is scaled for adult densities. Note the difference in the Y-axis between the graphs. Arrows indicate insecticide application at a given site.*

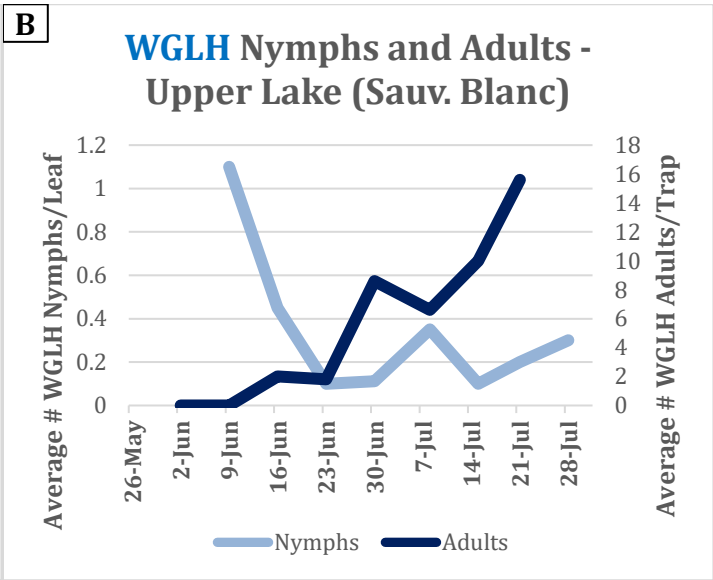
University of California
Agriculture and Natural Resources

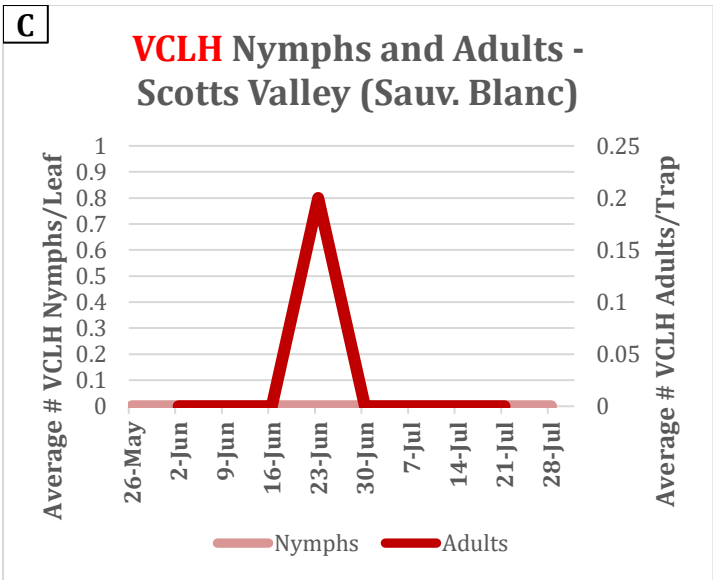
LAKE COUNTY MONITORING

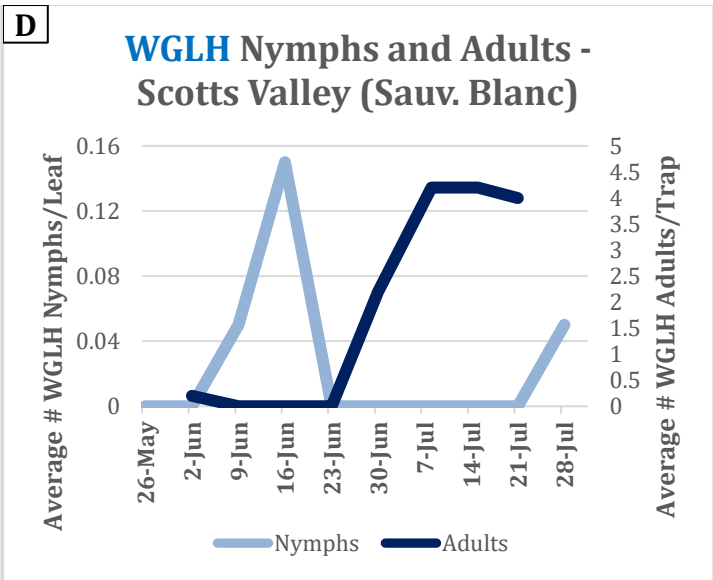
VCLH and WGLH Nymphs and Adults Emergence

We have been seeing the highest populations of VCLH in the Finley and Kelseyville areas (Figs. 2e and 2g). The highest WGLH populations are in the Upper Lake and Red Hills areas (Figs. 2b and 2j). Densities of WGLH adults appear to be peaking (or approaching peak) at all sites while VCLH densities are generally low and more variable. We are seeing VCLH and WGLH nymphs of the second brood, primarily 3rd – 4th instars (stage). Nymph counts were effected by insecticide applications that were made at the "Finley" and "Kelseyville" sites. In both cases conventional products were applied.

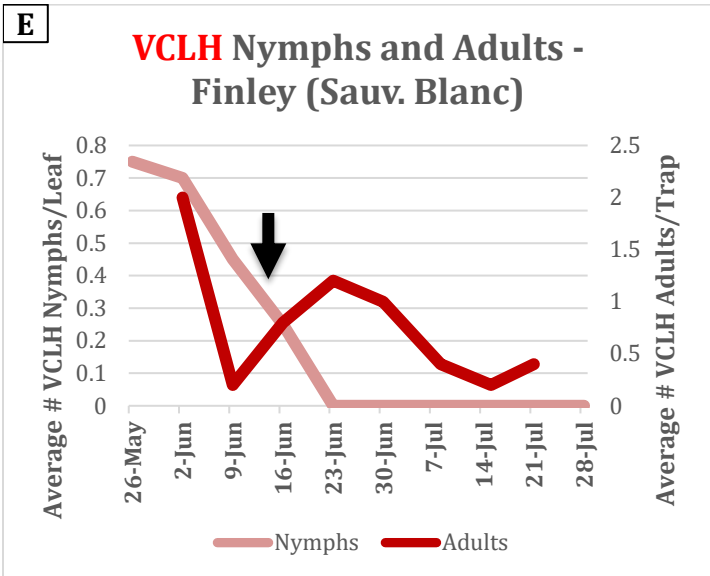




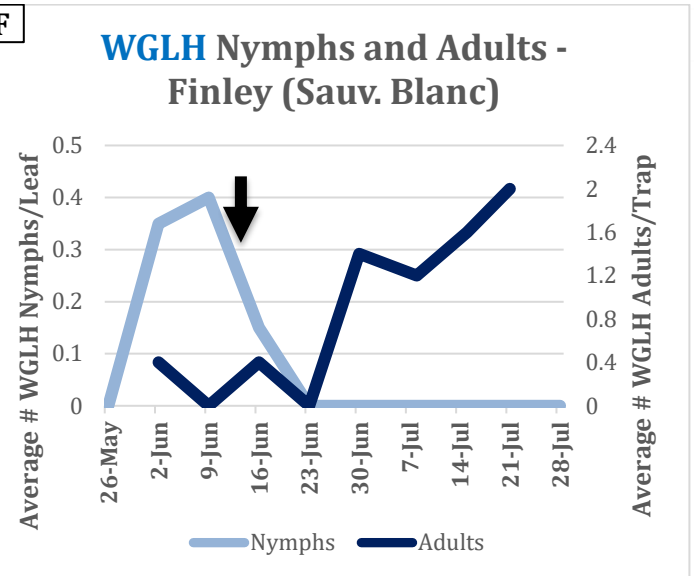




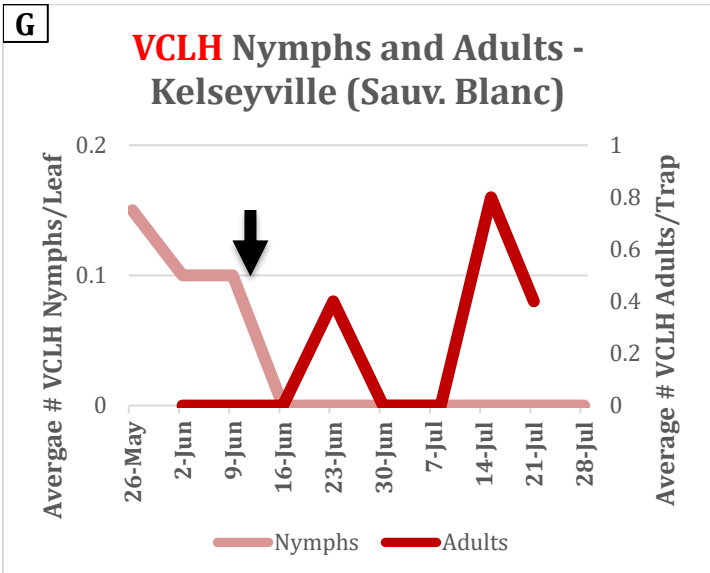
E


VCLH Nymphs and Adults - Finley (Sauv. Blanc)
Average # VCLH Nymphs/Leaf
Average # VCLH Adults/Trap
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2.5
2
1.5
1
0.5
0
26-May
2-Jun
9-Jun
16-Jun
23-Jun
30-Jun
7-Jul
14-Jul
21-Jul
28-Jul
Nymphs
Adults

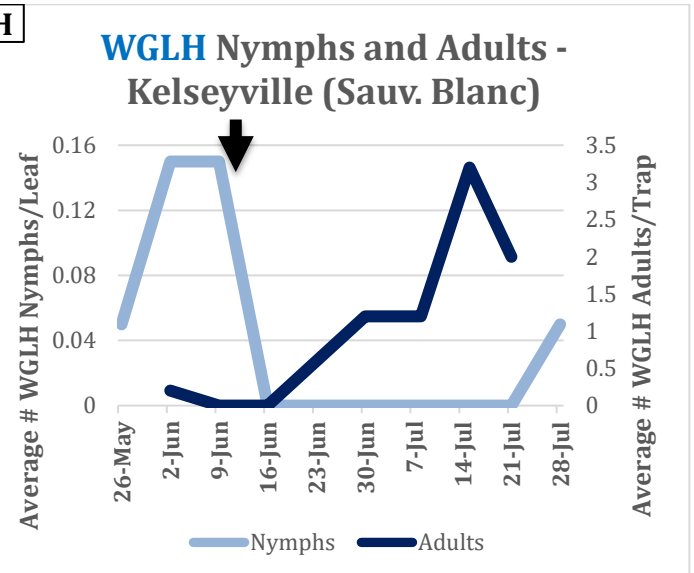
F


WGLH Nymphs and Adults - Finley (Sauv. Blanc)
Average # WGLH Nymphs/Leaf
Average # WGLH Adults/Trap
0.5
0.4
0.3
0.2
0.1
0
2.4
2
1.6
1.2
0.8
0.4
0
26-May
2-Jun
9-Jun
16-Jun
23-Jun
30-Jun
7-Jul
14-Jul
21-Jul
28-Jul
Nymphs
Adults

G


VCLH Nymphs and Adults - Kelseyville (Sauv. Blanc)
Avergae # VCLH Nymphs/Leaf
Average # VCLH Adults/Trap
0.2
0.1
0
1
0.8
0.6
0.4
0.2
0
26-May
2-Jun
9-Jun
16-Jun
23-Jun
30-Jun
7-Jul
14-Jul
21-Jul
28-Jul
Nymphs
Adults

H


WGLH Nymphs and Adults - Kelseyville (Sauv. Blanc)
Average # WGLH Nymphs/Leaf
Average # WGLH Adults/Trap
0.16
0.12
0.08
0.04
0
3.5
3
2.5
2
1.5
1
0.5
0
26-May
2-Jun
9-Jun
16-Jun
23-Jun
30-Jun
7-Jul
14-Jul
21-Jul
28-Jul
Nymphs
Adults

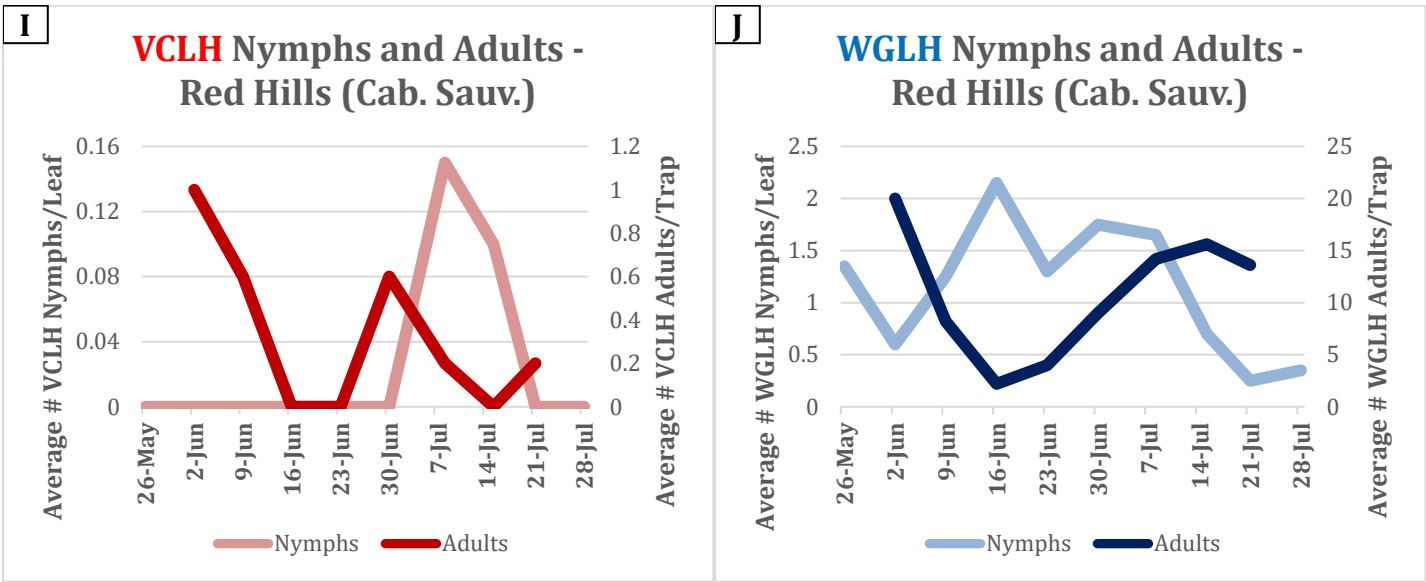


Fig. 2. Average number of nymphs and adults in five vineyards in Lake County from May 26 to present. WGLH populations appear to peaking (or approaching peak) while VCLH densities are generally lower and more variable. A majority of the VCLH and WGLH nymphs are currently 3rd – 4th instar (stage). *Primary axis (left) is scaled for nymph densities and secondary axis (right) is scaled for adult densities. Note the difference in the Y-axis between the graphs. Arrows indicate insecticide application at a given site.*

LEAFHOPPER NYMPH SPECIES IDENTIFICATION

Virginia creeper and Western grape leafhoppers are approximately the same shape, size (0.03 - 0.10 inch / 0.8 - 2.5 mm) and color (white/yellow) with the key exception that VCLH nymphs develop 4 distinct brown/red spots on their thorax as the nymphs mature. The spots don't appear until the nymph has molted at least once, so the early stage (1st instar) of both species is identical. The spots on VCLH nymphs are light orange on 2nd/3rd instars and become brown/red on the 4th/5th instar. At this time of the year, leafhopper nymphs can be found on fully-expanded, mature leaves just above the fruit zone (nodes 4-6).

Western Grape Leafhopper

Virginia Creeper Leafhopper

Photos: Jack Kelly Clark, UC IPM (left); Mike Poe, Comm. Services, ANR (right)

PARASITOID RELEASES

Our previous research has shown that a population of the egg parasitoid *Anagrus daanei* from the Sacramento Valley will readily attack VCLH eggs. Last year we recorded a significant increase in VCLH parasitism following the release of these *A. daanei* into a vineyard in Hopland. This year we are making *A. daanei* releases throughout Mendocino and Lake County. On July 29 we released 2 batches of *Anagrus daanei* into 2 Mendocino County vineyards in the Hopland area. Releases are scheduled to take place approximately every week over the growing season. The next release is scheduled for August 5 in Mendocino County. We will provide updates about additional releases and follow-up evaluations of parasitism rates at the release sites as this work progresses.

PROJECT MEMBERS AND CONTACT INFORMATION

- Houston Wilson, Post-doctoral Researcher, Dept. Environ. Sci. Policy & Management, UC Berkeley, houston@berkeley.edu
- Kent M. Daane, CE Specialist, Dept. Environ. Sci. Policy & Management, UC Berkeley, kdaane@ucanr.edu
- Ryan Keiffer, Ag. Technician, UCCE-Mendocino County, rfkeiffer@ucanr.edu
- Glenn McGourty, Viticulture and Plant Science Advisor, UCCE - Mendocino County, gtmcgourty@ucanr.edu
- Lucia Varela, Area-wide IPM Advisor, UCCE - Sonoma County, lgvarela@ucdavis.edu
- Lake County PCAs and Vineyard Managers: Broc Zoller, peardoc@pacific.net; Bill Oldham, billoldh@comcast.net; Randy Krag, randyk@beckstoffervineyards.com

DISCLOSURE STATEMENT

Funding for this project has been provided in part through a grant awarded by the Department of Pesticide Regulation (DPR). The contents of this document do not necessarily reflect the views and policies of DPR, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.