# Leafhopper Newsletter

August 23, 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

Leafhopper adults are now ovipositing higher up in the vine canopy and so we are now monitoring leafhopper populations on the leaves in the mid-canopy.

### VCLH and WGLH Adults, Viable Eggs and Nymphs

Densities of both VCLH and WGLH adults and eggs are approaching (or just passed) peak density at most sites, while nymph populations of both species continue to increase. For the WGLH, this nymph population increase represents the second brood whereas for VCLH the nymphs are likely a mix of second and third brood (later instars are from the second brood and earlier instars from the third brood).

Both VCLH and WGLH nymph populations were reduced during the first generation brood (i.e. May/June) at “McDowell Valley”, “Hopland1”, “Talmage1”, “Talmage2” and “Redwood Valley” after 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 once again seeing an increase in nymph populations at most of these sites.

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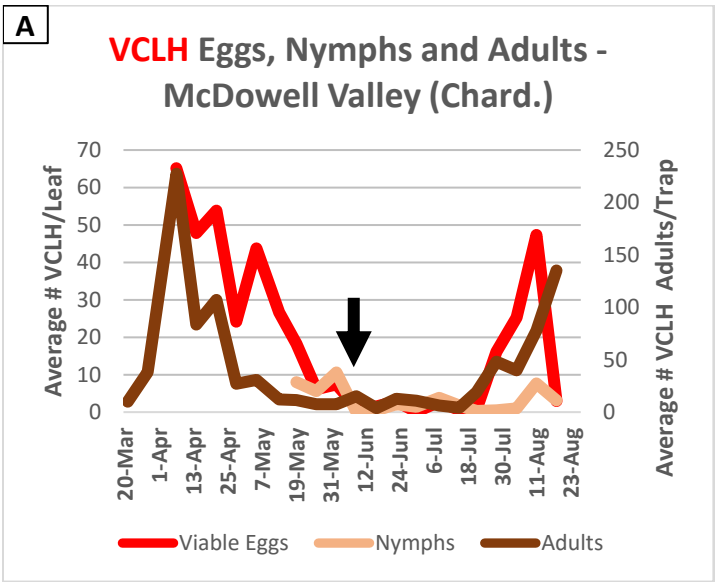


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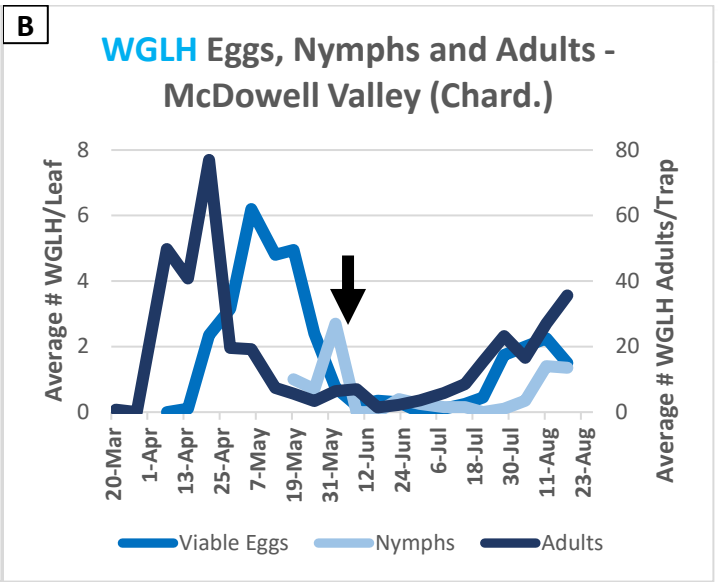


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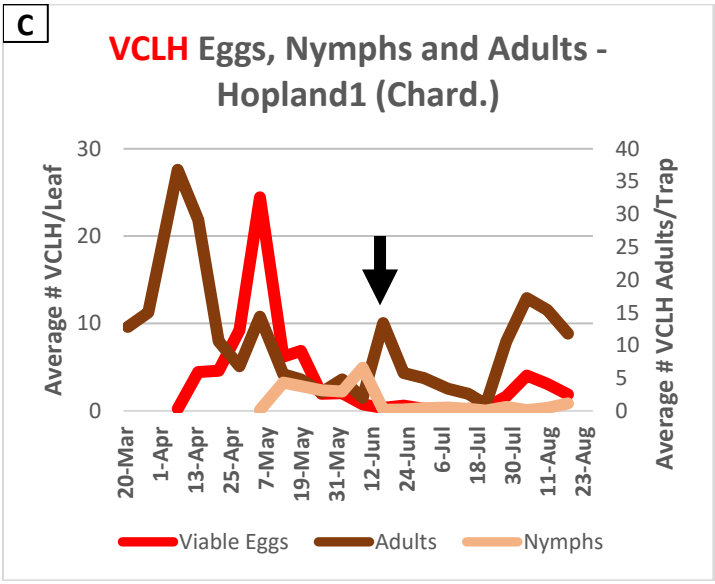


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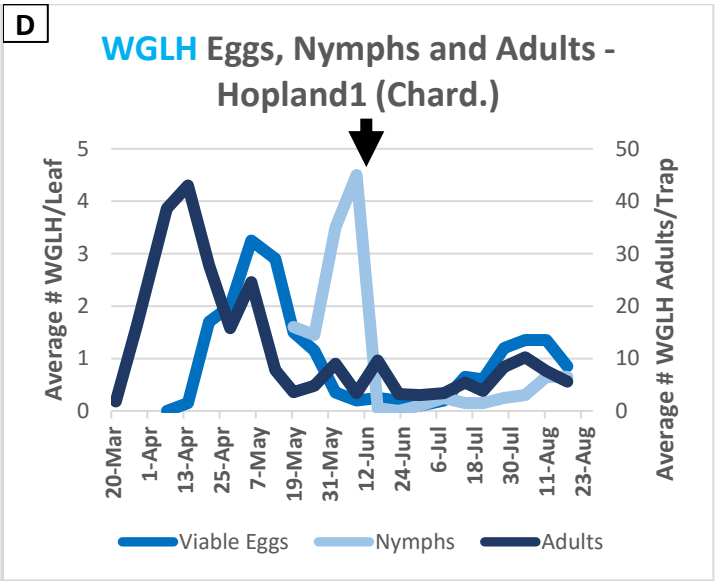

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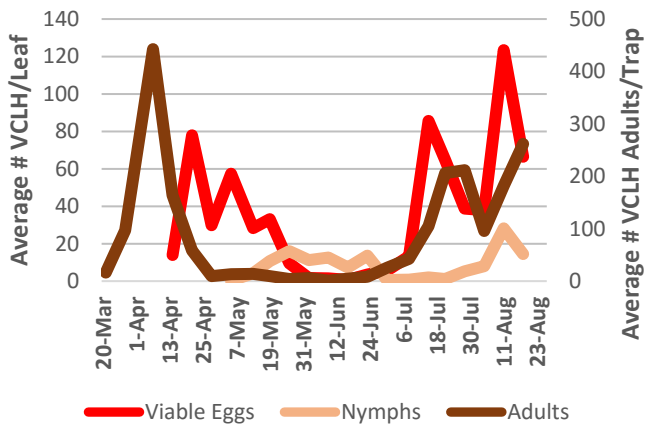


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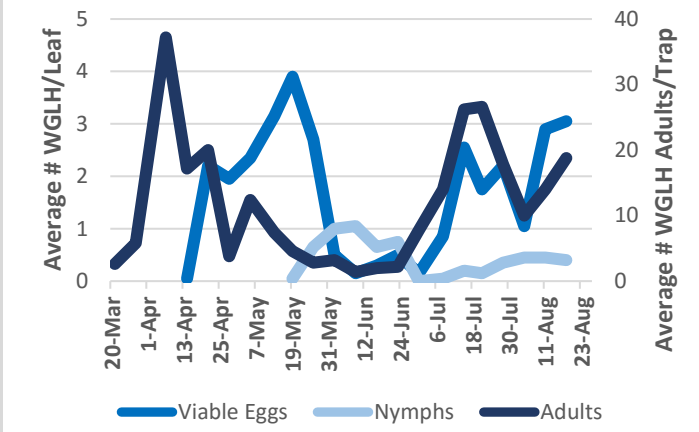


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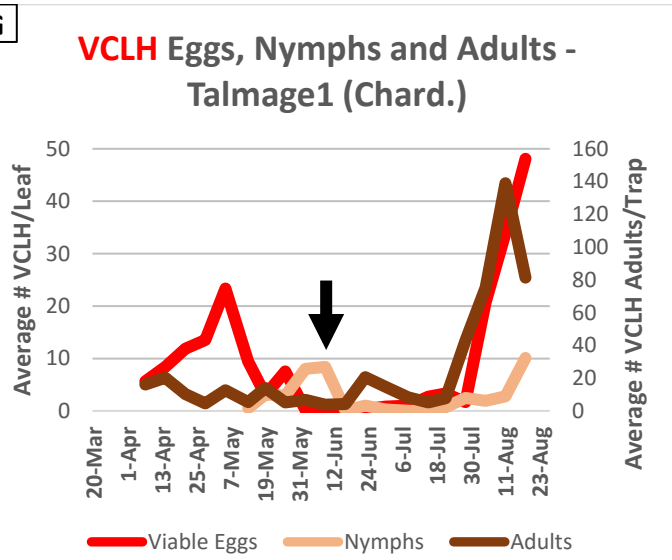


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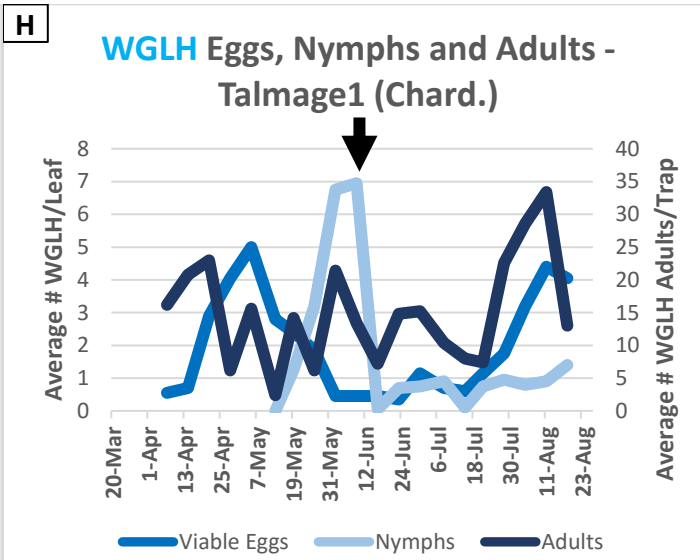

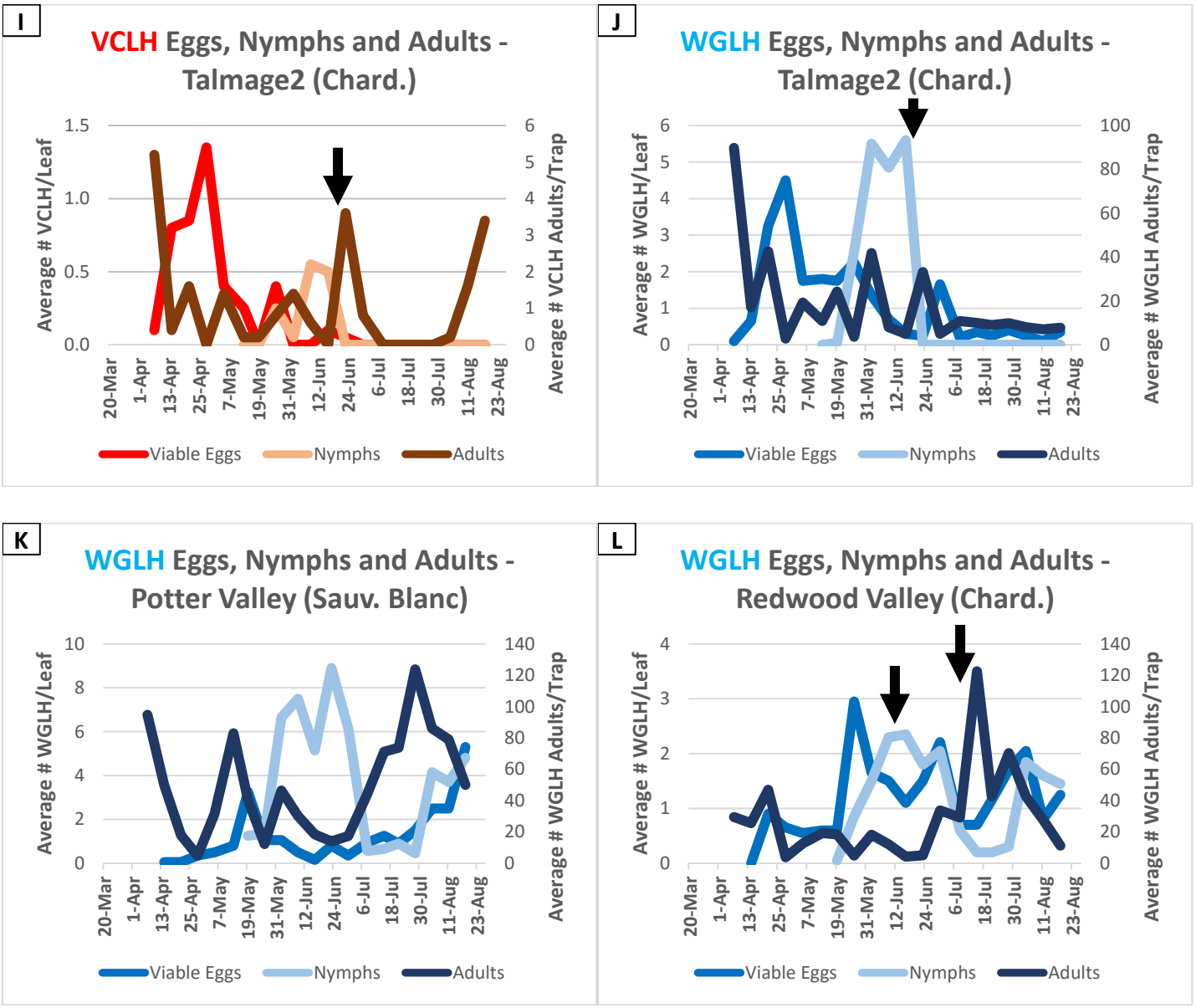


**Fig. 1. Average number of leafhopper adults, viable eggs and nymphs graphed by leafhopper species (VCLH and WGLH) in seven vineyards in Mendocino County. Leafhopper populations continue to follow trends similar to what was seen earlier in the season, with high VCLH populations in the Hopland and McDowell 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.***

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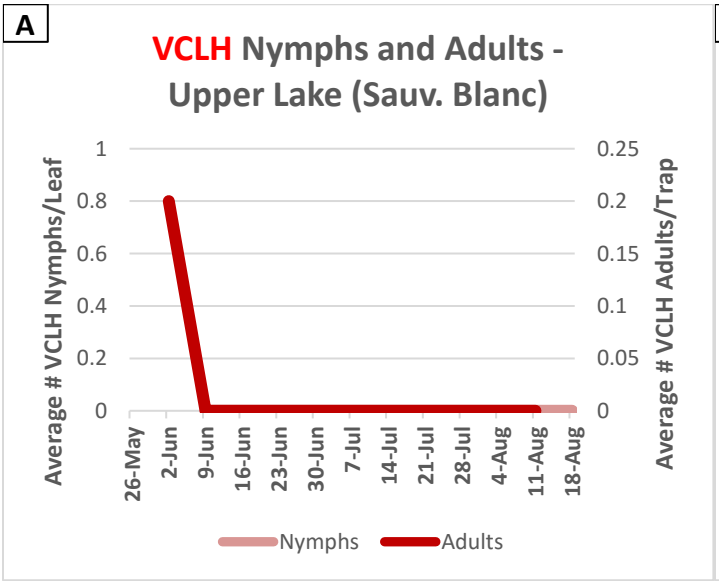
## LAKE COUNTY MONITORING

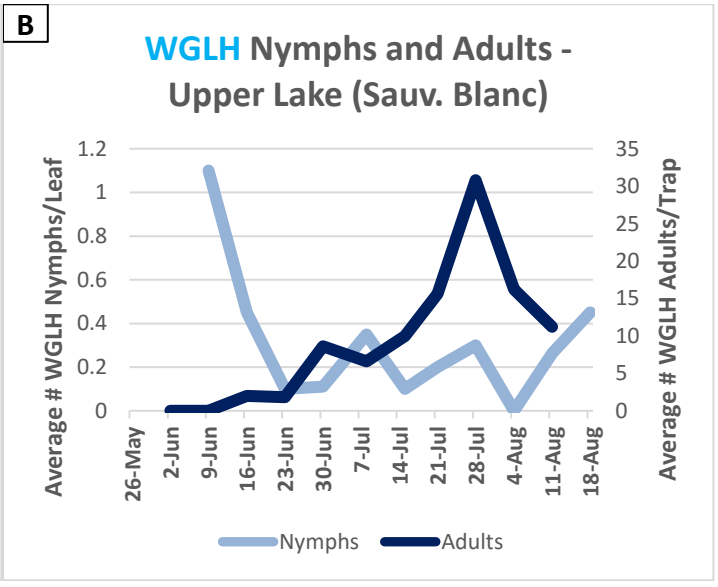
### VCLH and WGLH Adults and Nymphs

We had previously seen the highest populations of VCLH in the Finley and Kelseyville areas. They have now declined in Finley (Fig. 2E) but we still see high populations in the Kelseyville and Red Hills areas (Figs. 2G and 2I). The highest WGLH populations are in the Upper Lake and Red Hills areas (Figs. 2B and 2J).

WGLH adult populations have peaked (or are currently peaking) at all sites and we are now starting to see an increase in nymph densities at most sites with the exception of "Finley" (no WGLH nymphs observed at all). These nymphs represent the second WGLH brood.

VCLH adult and nymph densities are generally low and more variable across all sites. VCLH is practically non-existent at the "Upper Lake" and "Scotts Valley" sites, with the exception of a few adults observed in early and mid-June, respectively. At the "Finley" site, adult and nymph densities have declined following an insecticide application in early June. This is in contrast to "Kelseyville", where an insecticide application also took place in early June (in both cases a conventional product was applied) but we are now seeing a fairly consistent increase in VCLH adults at this site. A similar increase in VCLH adults was seen at the "Red Hills" site last week, but this week no VCLH adults were found on any of the traps. It should be noted that overall densities of VCLH are very low at both the "Red Hills" and "Kelseyville" sites (≤3 per trap). While no VCLH nymphs have been observed recently in the Lake Co. vineyards being monitored, if they do appear they will represent the third brood.



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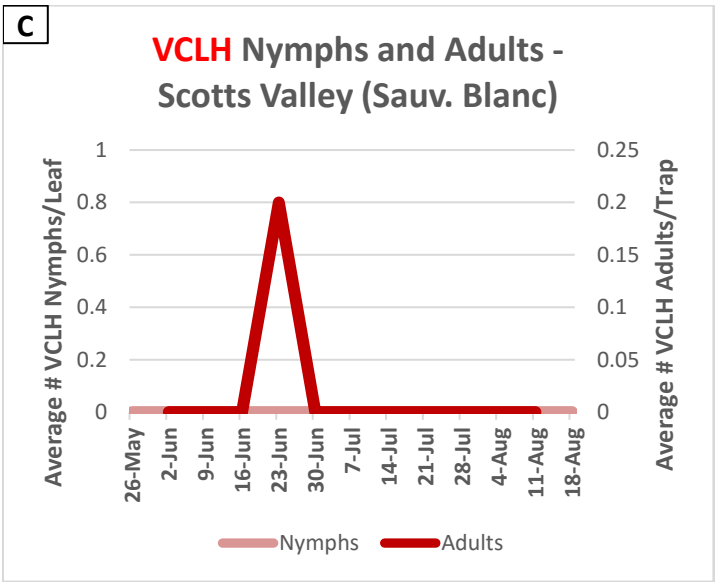


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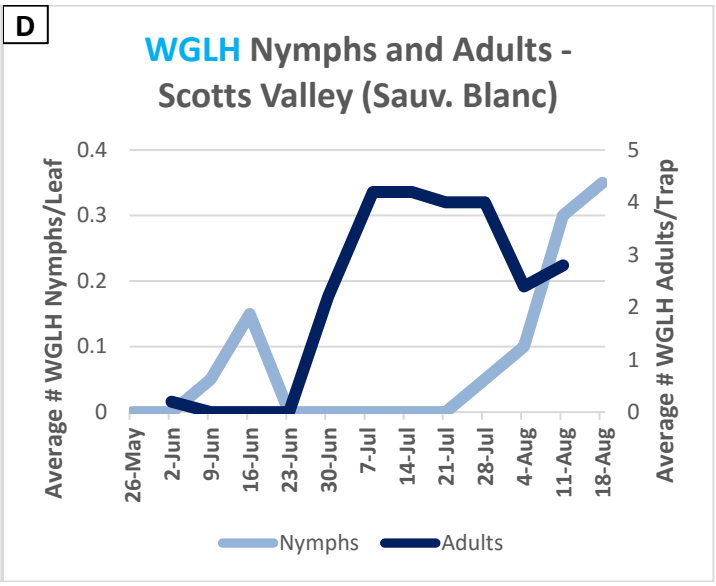


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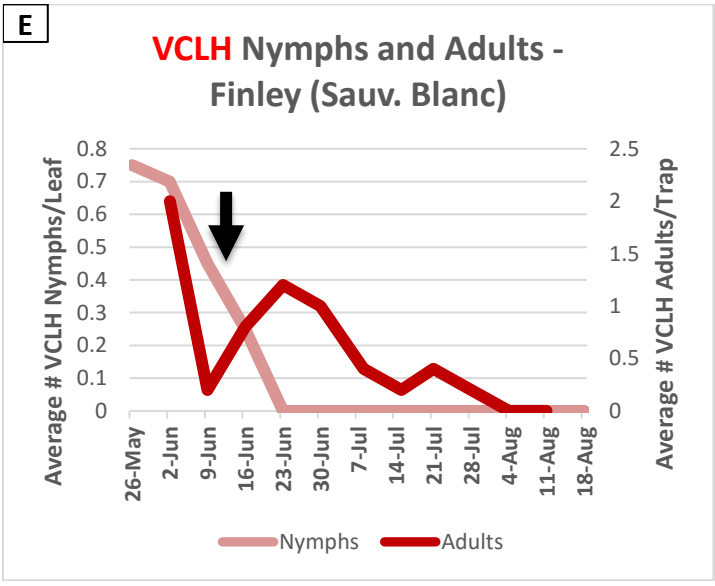


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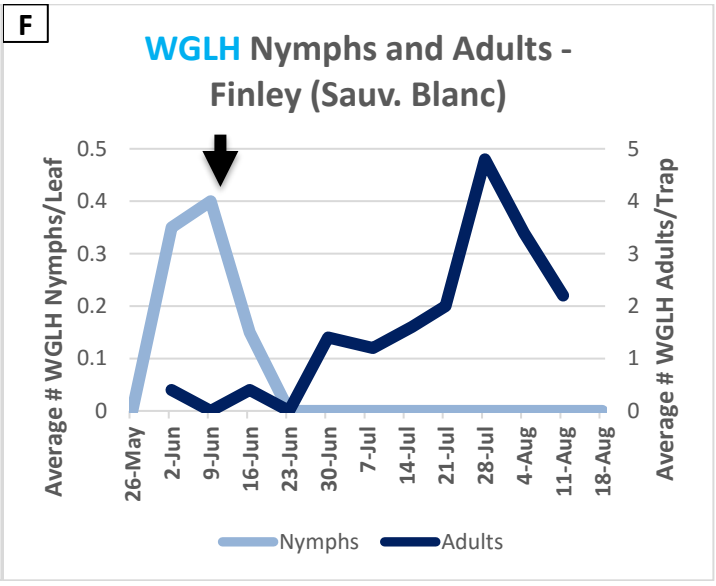

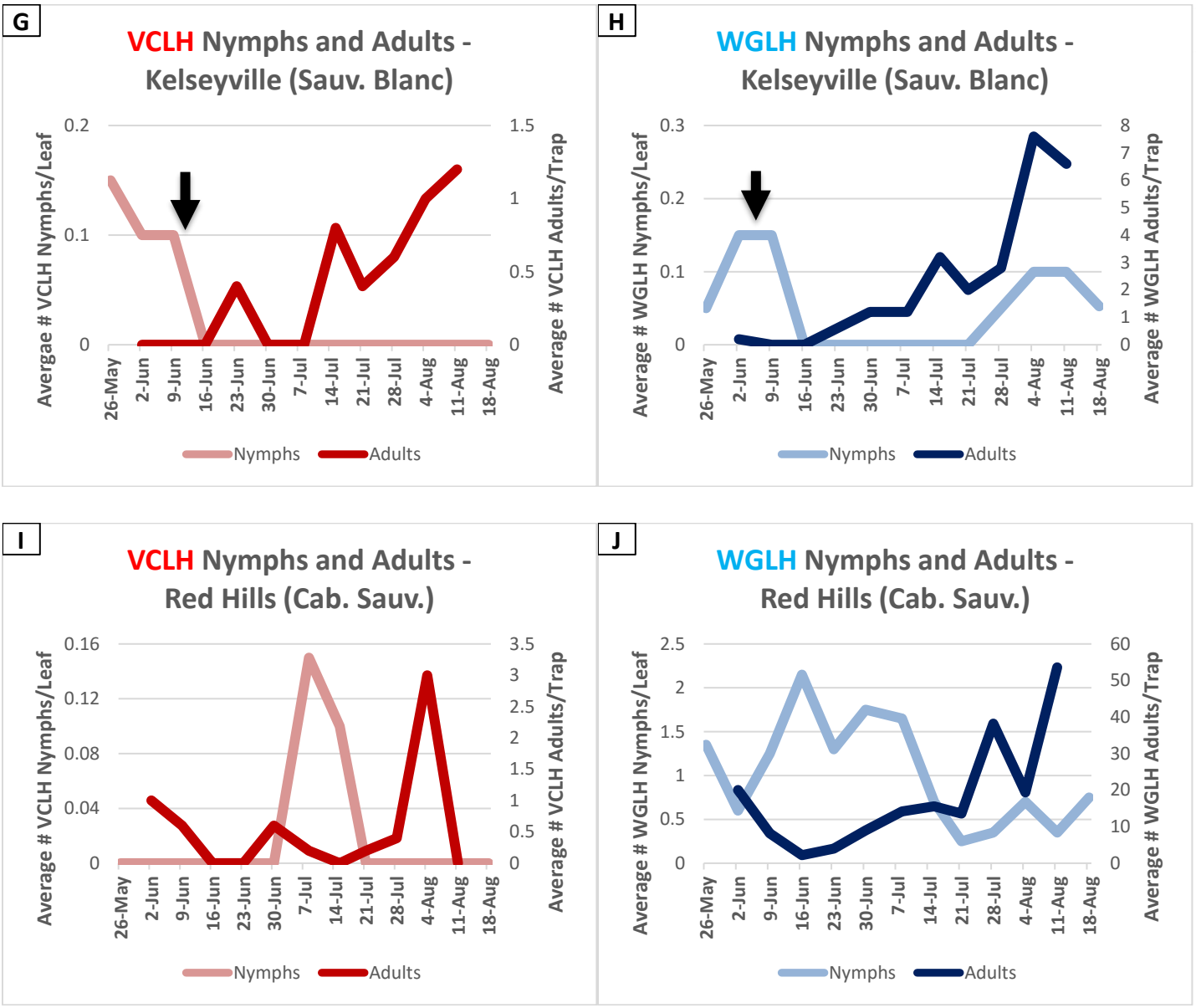


**Fig. 2. Average number of nymphs and adults in five vineyards in Lake County from May 26 to present. WGLH adult populations appear to peaking (or approaching peak) while densities of VCLH adults are generally lower and more variable. *Primary axis (left) is scaled for nymph densities and secondary 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.***

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## 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 in the mid-canopy.

**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 August 19 we released 2 batches of *Anagrus daanei* into a Mendocino County vineyard in the Hopland area. Releases are scheduled to take place approximately every week over the growing season. The next release is scheduled for August 26 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.

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## 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.