Two New Invasive Stink Bug Pests of Vegetables

As if we didn’t already have enough trouble with stink bugs in vegetables, we now face the looming reality of another two stink bugs that have the potential to cause serious economic damage to vegetables. Both of these invasive pests are categorized (or will be soon) as C-rated pests by the California Department of Food and Agriculture and will not be subject to action by the State. So the good news is that there will not be any quarantine imposed or crops destroyed because of invasive stink bug findings here. The bad news is that there will be no attempts by the State to eradicate these pests; growers may soon be taking on the challenges of controlling them. In the meantime, I want people to be aware of them so that we know when they start appearing in crops and causing problems.

Brown Marmorated Stink Bug (*Halyomorpha halys*)
This new invasive stink bug is now established in Sacramento area and Yuba City, but individuals have been found in Stockton as well (including in my backyard!). I have not heard of any real finds of more than one individual, or of it causing feeding damage, but it is certainly a concern and if we are finding single individuals then there are certainly more that are not being detected or reported.

We have discussed brown marmorated stink bug (BMSB) in past newsletters, but to summarize, this pest can cause serious damage by feeding on fruit, including fruiting vegetables such as tomato, peppers and eggplant (as well as tree fruit). They can be easily confused with other stink bugs, but upon close inspection can be differentiated by their distinctive white bands on legs and antennae (see photos in links below).

More info on brown marmorated stink bug (BMSB): http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74169.html

Bagrada Bug (*Bagrada hilaris*)
While I am not aware of any finds of bagrada bug in San Joaquin County they were found in Stanislaus County this season and will likely be in our area soon if they are not already here and just not yet reported. Bagrada bugs could be mistaken for harlequin bugs except that at only about ¼ inch long they are smaller than harlequin bugs and the white and orange markings are distinctive (see photo below).

**Damage.** Bagrada bugs attack various vegetables but are particularly attracted to plants in the mustard family. In addition to cole crops, they can be found on weeds (e.g. mustard, wild radish, shepherd’s-purse, pepperweed) and on ornamentals such as sweet alyssum and stock. Feeding by the bagrada bug can cause economic damage, especially on leafy vegetables such as mustard and collards. On broccoli, cabbage and cauliflower, feeding on young plants can result in death of the apical growing point, resulting in either “blind” heads or multiple heads. Bagrada bugs are particularly damaging to small plants and may kill seedlings.

**Life cycle.** Females lay eggs in the soil but may also lay eggs on leaves or on hairy stems of non-host plants. Research suggests that, depending on temperature and food source, a female bug can lay up to 150 eggs within two to three weeks. Eggs can hatch in as little as four days. The nymph passes through five instars. Newly molted nymphs of all stages are orange-red but legs, head, and thorax darken quickly to black. The brightly colored nymphs may be confused with lady beetles but lack their shiny, hardened wings. Older nymphs develop dark wing pads and white spots on the abdomen prior to becoming adults.

(Continued on page 2)
Scouting. Feeding damage (light green starburst lesions) may be easier to spot than the insects themselves at early stages of infestation. Look for the adults on the underside of leaves or cotyledons. Scouting for bagrada bugs should be done during the warmest part of the day when they are most active. When temperatures are cool, these bugs may hide on the undersides of leaves, around stem bases, or in soil cracks and crevices. When the bugs are numerous, they may be monitored by beating or shaking plants over a tray or a sheet of paper.

Control. Control weedy hosts in and near crop areas. Removal of plant residue after harvest can reduce carryover between crops. Bagrada bugs seem to be controlled with synthetic pyrethrroids, neonicotinoids, and organophosphate compounds (for information on chemical control, see the link at the bottom of this article). For organic growers, mechanical removal (picking) and use of pyrethrins and azadirachtin (for immature stages) seem to be available options at this moment. Other organically approved materials do not seem to be effective based on available information. In the home garden, you might prefer to just remove host plants rather than deal with this pest.

Regulatory Status. As of January 1, 2015 the State of California (Dept. of Food & Ag) is expected to reclassify bagrada bug from a B-rated pest (an organism of known economic importance subject to eradication, containment, control or other holding action at the discretion of the county agricultural commissioner) to a C-rated pest (an organism subject to no state enforced action except to provide for pest cleanliness in nurseries). The pest is already found in many other states in the US, but not all. Note that Florida has been exercising its authority to not only deny produce shipments containing bagrada bug but also to temporarily suspend shippers that ship produce to Florida that contains the bagrada bug.

Report sightings. If you think you have seen a bagrada bug in San Joaquin County (or any other county where it has not been reported), place it in a container, note where and when you collected it, and bring it to the county agricultural commissioner or our UC Cooperative Extension office.


Acknowledgements for information on bagrada bug:
Eric T. Natwick, UC Cooperative Extension, Desert Research & Extension Center, Holtville, CA
John Palumbo, University of Arizona, Yuma Ag Center, Yuma, AZ
Surendra Dara, UC Cooperative Extension, San Luis Obispo, CA

Brenna Aegerter, Vegetable Crops Farm Advisor

---

**Botryosphaeria & Post-Harvest Pruning of Walnuts**

Botryosphaeria is a relatively new problem in walnuts. Research is on-going into Bot problems and solutions in walnuts, and we do not yet have walnut experiment-based answers for many questions. But many management decisions need to be made now. Below are the best answers we have to questions regarding post-harvest pruning and Bot, based on Bot work in walnut and pistachio by Dr. Themis Michailides, UC Plant Pathologist.

Will pruning or hedging spread Bot in an orchard?

The answer depends on how heavily infected the orchard was in the previous season.

If there was heavy infection the previous season...

It is likely that pruning or hedging will spread Bot to a certain degree, but if the orchard is heavily infected, it really does not matter. If heavy Bot infection was observed throughout the orchard, there is already enough disease inoculum to potentially infect healthy tissue next season. If this is the case, there should be a plan for applying fungicides for the next few growing seasons. The potential small addition or spread of Bot from pruning will not make the problem worse, because there is already a high disease potential, and a plan to address it. A yearly fungicide program over many years will slowly but surely reduce potential sources of infection.

If there was light-to-medium infection the previous season...

Prune or hedge these orchards first and then move into more heavily infected orchards. Before entering a light-to-medium infection orchard, flame the saws with a torch to clean them. Prunings should be removed out of the orchard and destroyed.

If there was no infection the previous season...

Be sure to carefully sanitize all equipment so that no Bot is brought in. If the orchard is clean and the equipment is clean, pruning should not spread Bot. If there was no dead wood found (for example, in a young orchard), prunings can be shred and left on the orchard floor.

Is pruning significantly less likely to spread Bot than hedging, because it makes fewer cuts?

We do not know. Although a comparison has not been made yet, we have observed Bot infections in both kinds of pruning cuts. Pruning and hedging should be done during a season which is predicted to be dry.

Can Bot move on pruning shears, chain saws, and/or hedging blades?

Yes. Because we know it can spread by pruning shears in pistachio and Botryosphaeria was isolated from chain
saws after cutting dead walnut branches with Bot pycnidia (spore producing structures of the pathogen), we can assume it can also spread in walnut, but we do not have experimental data to prove this yet. In pistachio, hand shears can spread the disease to 2-3 cuts after cutting into infected wood with pycnidia of the pathogen.

How can saws and blades be sanitized to prevent spreading the disease? Sanitation of the saws can be done by flaming the blades or edges of the saws. Other means are being studied now.

Is it worth sanitizing between trees, or should this only be done between orchards? It is not worth the time to sanitize between trees but certainly sanitize between orchards.

How long do wounds take to heal? In other words, how much time should a grower budget between pruning and a rain event to avoid infection? This has not been tested in walnuts but is under investigation now. Judging from tests on other plants the wounds are likely vulnerable to infection for about two weeks. So, try to allow two weeks between pruning and a rain event.

What should be done with wood from pruning? In heavily infected orchards, it does not make much difference if the prunings are shredded on the floor of the orchard or if they are taken out of the orchard and burned. This is for the same reasons as in the very first question — In a heavily infected orchard, there is already plenty of spore inoculum to spread the disease, and a little more likely won’t make much difference. In orchards with light-to-medium infection levels, the wood should be removed. In orchards where no Bot was found last season, wood killed due to other reasons (freeze herbicide, sunburn, etc. damage) can be shredded and left on the orchard floor.

Should orchards be sprayed after fall pruning? Fungicide sprays are only necessary if rain is expected within the 2-week window after pruning. Spraying is not necessary, nor beneficial if conditions will be dry for 2 weeks after pruning. However, if a rain is predicted a spray can be done (see next question and answer). Residues of this spray will prevent the spores (spread by the rain) to germinate and infect pruning cuts and fruit and leaf scars in the fall. Remember if temperatures are below 50 F infections will not occur.

If rain is expected, and an orchard was just pruned, when should it be sprayed? Spray if a rain is predicted (before the rain) or 2-3 days after the rain. Some of the fungicides can last for 2-4 weeks, so multiple sprays should not be necessary at this time of the year.

What fungicides are effective for protecting against Bot infections of pruning cuts? This is still being investigated. In walnut tests so far, some of the more effective products have included Pristine, Merivon, Quilt-Xcel, Luna Experience, Quatris Top, and Abound. Other products will likely be added to this list as more work is done.

Katherine Pope, Orchard Systems Advisor, Yolo County
Joe Grant, Pomology Advisor, San Joaquin County

Dormant Weed Control in Orchards

Weeds have a tremendous capacity to spread within an orchard. The first line of defense is identifying the weeds you need to control, and selecting the best herbicides or cultural practices to control those weeds. If you use the same herbicides each year, a shift to tolerant weed species can happen and a loss of herbicide effectiveness will occur. Alternating products with different modes of action at least every couple years will improve results and insure the long-term viability of herbicides. The UC IPM website has charts that show which weeds are controlled by what herbicides, and an excellent weed photo gallery that includes many weed species commonly found in California for easy identification and reference [http://www.ipm.ucdavis.edu/](http://www.ipm.ucdavis.edu/). Other great resources are the UC Weed Research and Information Center: [http://wric.ucdavis.edu/](http://wric.ucdavis.edu/) including a weed identification tool. Dr. Brad Hanson, Extension Weed Specialist at UC Davis, runs the following sites: UC Weed Science Blog at [http://ucanr.org/blogs/UCDWeedScience/](http://ucanr.org/blogs/UCDWeedScience/) and CA Tree and Vine Registrations: [http://ucanr.org/t&v-registrations](http://ucanr.org/t&v-registrations) (updated January 2014).

Please note that trade names are used, as are the less familiar common names of herbicides, however no endorsement of products mentioned or criticism of similar products is intended.

Preemergent Herbicides

Prowl H₂O (pendimethalin) herbicide has excellent grass control and broadleaves especially those germinating in the spring and summer time. Surflan (oryzalin) and Prowl are similar in their weed spectrum and residual properties. Prowl H₂O and Surflan remain stable on the soil without rainfall for 21 days. Apply them at the higher label rates (4-6 quarts per sprayed acre) for extended weed control. Another strategy is to treat early season November/December for winter weeds with a low rate of glyphosate (Roundup, Touchdown) with a soil residual herbicide such as Chateau, Matrix, Alion, or Pindar GT and then wait to apply the Surflan or Prowl later in February or March to achieve summer long weed control.

Chateau (flumioxazin) is a long-lasting pre-emergent herbicide available for tree, nut, and vine crops. Applied between 8-12 oz. per treated acre, Chateau enhances burndown of small broadleaf weeds and provides residual control of difficult weeds such as fleabane and horseweed (mare’s tail) and a host of other winter weeds as they germinate. This has made Chateau an excellent herbicide for use in the fall/early winter timing during the...
Matrix FNV (rimsulfuron) is a preemergent herbicide active on many winter broadleaf and grass weeds including fleabane, malva, willowherb, and mare's tail. Its broad-spectrum activity on grasses and broadleaf weeds, makes it a good fit for an early fall application timing November/December. It should be tank mixed with a contact herbicide; Roundup, Rely, Gramoxone, or Treevix. Matrix is applied at 4 ounces product per broadcast acre. A second application or use of another pre-emergent herbicide is generally needed in the spring for extended summer weed control. Matrix is very safe on young trees.

Alion (indaziflam) is a new herbicide registered in tree nuts. It is a preemergent, long-lasting soil residual herbicide exceptional in controlling grasses and many broadleaf weeds. It is effective on both winter and summer weeds including fleabane, mare’s tail, sowthistle, and willowherb. At least 1/4 inch of water is needed to set and activate soil residual. Since it is strictly a preemergent herbicide, it requires a tank mix with a postemergence herbicide for emerged weeds; Rely, Roundup, and Gramoxone are all compatible. Alion is a new chemistry and has shown excellent results and has an inhibiting cell wall formation mode of action (MOA). This MOA will have an important role in future weed control strategies of weed resistant management. Dr. Brad Hanson, Extension Weed Specialist at UC Davis, performed a number of trials in which Matrix and Alion were tank mixed together with even better efficacy in combination (see Dr. Hanson’s blog post at http://ucanr.edu/blogs/blogcore/postdetail.cfm?postnum=11625).

Pindar GT (oxyfluorfen and penoxsulam) is two herbicides, having pre and postemergence activity for use in tree nuts and fruits. Applied in November/December, it provides residual control lasting into spring/early summer. It is especially effective on filaree, malva, willowherb, sowthistle, and many other winter broadleaf weeds. If weeds have emerged, it is recommended to combine it with a postemergence herbicide Roundup, Rely, or Gramoxone. If heavy grass pressure is anticipated in the orchard, the addition of Prowl or Surflan will benefit long term grass weed control. Within 14 days of application, a ½ inch of water is needed to set and activate the herbicide.

Trellis (isoxaben) has been recently registered for use in bearing almonds and other nut and fruit crops. It is a preemergent herbicide controlling many winter and summer broadleaf weeds. Applied in the fall/winter time frame will provide 4-5 months of control. It has no postemergence activity, therefore, it must be tank mixed with Roundup, Rely, or Gramoxone for emerged weeds. The mode of action of Trellis is unique; it inhibits cellulose development making it a good rotational herbicide to manage weed resistance. If grass weeds are an issue, the addition of a preemergent grass herbicide (Prowl or Surflan) will be needed.

Postemergence

Rely (glufosinate) herbicide has become a mainstay for growers needing a broad spectrum burndown herbicide to control tough weeds like filaree, willowherb, or glyphosate-resistant fleabane and marestail. In recent years, the development and spread of glyphosate-resistant weeds is forcing a change from Roundup Ready corn and soybeans varieties to planting Liberty Link varieties which require the use of glufosinate herbicide (Rely, Liberty). We are confident with the post and preemergent herbicide combinations we have available, when used in a timely manner, we can expect excellent weed control.

Treevix (saflufenacil) is a new postemergence contact herbicide offered for almond, nuts, and fruit crops. The use is for tough emerged broadleaf weeds but it has no activity on grasses. Like all post contact herbicides, treating small weeds 1”- 6” tall with complete spray coverage is important. Treevix is excellent in burning down fleabane, mare’s tail, and willowherb, especially in cooler temperatures beginning in fall through spring time. It has no soil residual activity, therefore, will need to be tank mix with soil active herbicides for long term control. If grasses have already emerged, using glyphosate or Gramoxone is needed.

Some growers may prefer multiple postemergence treatments rather than preemergence treatments if orchard access is limited during the dormant season. Roundup, Touchdown, Gramoxone, Shark, Venue, Rely, Goal, and 2,4-D are registered for use in almond orchards. Glyphosate is moderately effective on purple nutsedge with repeated applications prior to the six-leaf growth stage. Yellow nutsedge can be managed by using 4qts/A of glyphosate at each application. Sandia has shown excellent results to control nutsedge, but is not registered on almond (Sandia is registered for pistachio and walnut). The key to nutsedge control is repeated applications before it is able to regenerate new nutlets and until tree size allows for orchard shading. Cost comparisons between pre and postemergence programs often show that the expense of repeated contact application equals or exceeds the cost of the preemergence treatment, especially if you have noxious weeds like fleabane, which are best controlled with these newer preemergence materials. Herbicide application equipment should NEVER be used for treating tree foliage! NOTE: Before using any herbicide always check labels for any use restrictions applicable to your area or soil type.

Hopefully we will get some rain this December to set pre-emergent herbicides!

Mick Canevari, Emeritus Advisor
Brent Holtz, Pomology Advisor and County Director
Field Corn Variety Trial Results

Table 1 shows the results of the 2014 UCCE Delta field corn variety trial, located on Tyler Island (see page 6). Three replicate blocks of nineteen varieties were planted on April 28th by air planter. The nineteen varieties included 16 varieties submitted by seed companies and three varieties submitted by the grower. Each replicate consisted of four 30-inch beds on an average row length of 1158 feet. Seed was planted two inches deep and six inches apart down the row, for an approximate planting density of 35,000 seeds per acre. The soil is a Rindge mucky silt loam with approximately 20 percent organic matter in the top 15 inches of soil. The Rindge series is a mucky peat soil down to 60 inches, and approximately 55,600 acres in the Delta are described by the Rindge classification. The previous crop in the field was corn, and subsurface irrigation by “spud ditch” was employed three times. Nitrogen was applied preplant (110 units/acre as NH₃), and 34 gallons/acre of 8-24-6 with ½% of zinc was knifed in at planting. Weed control was by cultivation and one glyphosate application, and no miticide was applied. The field was harvested on September 30th.

Fusarium ear rot

The table presents mean values for the three replicates. When interpreting the results, keep the following in mind. The mean is equal to the sum of values divided by the number of values, in this case, three replicates. The statistical method used to compare the means, called Tukey’s range test, compares all means against each other. Varieties were considered statistically different if their P value was less than 0.05, or 5 percent. What this means is that when differences between varieties exist, we are 95% certain that the two varieties are actually different; the results are not due to random chance. Differences between varieties are indicated by different letters following the mean. For example, a variety that has only the letter “a” after the mean yield value is different from a variety that is followed by only the letter “b”, but it is not different from a variety whose mean value is followed by both letters (“ab”). Similarly, a variety whose mean yield is followed by the letters “ab” is not different from a variety whose mean yield is followed by the letters “bc”. Eight varieties have a letter “a” following their mean yield, which means that those eight varieties all performed similarly in the trial. The numerical values of these eight varieties differ, but based on this research, we cannot attribute those numerical differences to variety differences. Among varieties, there were also differences in stand count, bloom date, head smut presence, ear height, grain moisture, and bushel weight.

The CV, or coefficient of variation, is the standard deviation divided by the mean, or a measure of variability in relation to the mean. For some measures, particularly the disease percentage, the variability between the three replicates was very high.

Special thanks go to grower cooperators, Steve and Gary Mello, and participating seed companies.

Michelle Leinfelder-Miles, Farm Advisor, Delta Crops
Table 1. 2014 UCCE Delta field corn variety trial
By: Michelle Leinfelder-Miles, UCCE Farm Advisor

<table>
<thead>
<tr>
<th>Initials</th>
<th>Entry</th>
<th>Company</th>
<th>Stand</th>
<th>Days to Bloom</th>
<th>Fusarium ear rot (%)</th>
<th>Head Smut (%)</th>
<th>Common Smut (%)</th>
<th>Plants Lodged (%)</th>
<th>Ear Height (in)</th>
<th>Moisture at Harvest (%)</th>
<th>Bushel Weight (lbs/bu)</th>
<th>Yield (lbs/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DK</td>
<td>64-82</td>
<td>DeKalb/Grower</td>
<td>33106</td>
<td>ab 67 cde</td>
<td>1.3</td>
<td>0</td>
<td>b</td>
<td>0</td>
<td>0</td>
<td>51 abcde</td>
<td>13.1 ab</td>
<td>67.8 a</td>
</tr>
<tr>
<td>ES</td>
<td>7443RR</td>
<td>Eureka Seeds</td>
<td>34703</td>
<td>ab 66 e</td>
<td>0</td>
<td>1.7 ab</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>50 abcde</td>
<td>12.2 b</td>
<td>66.8 abcd</td>
</tr>
<tr>
<td>INT</td>
<td>9642VT3PRO</td>
<td>Integra</td>
<td>34267</td>
<td>ab 68 bc</td>
<td>1.3</td>
<td>0.3 ab</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>49 abcde</td>
<td>13.6 a</td>
<td>66.1 abcd</td>
</tr>
<tr>
<td>ES</td>
<td>7514VT2P</td>
<td>Eureka Seeds</td>
<td>35719</td>
<td>a 68 b</td>
<td>0.7</td>
<td>0</td>
<td>b</td>
<td>0</td>
<td>0</td>
<td>51 abcde</td>
<td>13.8 a</td>
<td>67.4 ab</td>
</tr>
<tr>
<td>DG</td>
<td>D5VP77RIB</td>
<td>Dyna-Gro</td>
<td>34993</td>
<td>a 68 bcd</td>
<td>0.3</td>
<td>0.3 ab</td>
<td>0.3</td>
<td>0</td>
<td>48 bcde</td>
<td>12.7 ab</td>
<td>66.9 abc</td>
<td>11734 abcde</td>
</tr>
<tr>
<td>DK</td>
<td>63-07RIB</td>
<td>DeKalb</td>
<td>35429</td>
<td>a 66 de</td>
<td>0.3</td>
<td>0.7 ab</td>
<td>0</td>
<td>0</td>
<td>44 de</td>
<td>12.9 ab</td>
<td>64.1 ef</td>
<td>11443 abcdef</td>
</tr>
<tr>
<td>CP</td>
<td>7087VT2P/RIB</td>
<td>Croplan</td>
<td>36155</td>
<td>a 67 bcde</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>47 bcde</td>
<td>13.6 a</td>
<td>66.3 abcde</td>
</tr>
<tr>
<td>DK</td>
<td>62-08RIB</td>
<td>DeKalb</td>
<td>35429</td>
<td>a 70 a</td>
<td>0</td>
<td>0.7 ab</td>
<td>0</td>
<td>0</td>
<td>53 ab</td>
<td>13.5 a</td>
<td>64.7 def</td>
<td>10937 abcdef</td>
</tr>
<tr>
<td>NK</td>
<td>N68B-3111</td>
<td>Syngenta</td>
<td>35284</td>
<td>a 66 e</td>
<td>0.3</td>
<td>7.7 a</td>
<td>0</td>
<td>0</td>
<td>41 e</td>
<td>13.3 ab</td>
<td>56.5 hi</td>
<td>10366 bcdefgh</td>
</tr>
<tr>
<td>DK</td>
<td>64-69</td>
<td>DeKalb/Grower</td>
<td>35574</td>
<td>a 68 bc</td>
<td>0.7</td>
<td>1.3 ab</td>
<td>0</td>
<td>0</td>
<td>51 abcde</td>
<td>12.8 ab</td>
<td>65.0 cde</td>
<td>10359 bcdefgh</td>
</tr>
<tr>
<td>BAG</td>
<td>SX5543RR</td>
<td>Baglietto Seeds</td>
<td>33686</td>
<td>ab 68 bcd</td>
<td>2</td>
<td>1.3 ab</td>
<td>0.3</td>
<td>0</td>
<td>45 cde</td>
<td>13.5 a</td>
<td>66.9 abc</td>
<td>10288 bcdefgh</td>
</tr>
<tr>
<td>DG</td>
<td>D5VP51RIB</td>
<td>Dyna-Gro</td>
<td>35066</td>
<td>a 68 b</td>
<td>0</td>
<td>0</td>
<td>b</td>
<td>0</td>
<td>52 abc</td>
<td>13.8 a</td>
<td>65.6 bcde</td>
<td>10256 bcdefgh</td>
</tr>
<tr>
<td>PI</td>
<td>1266AM²</td>
<td>Pioneer/Grower</td>
<td>36155</td>
<td>a 67 bcde</td>
<td>0.5</td>
<td>2.5 ab</td>
<td>0</td>
<td>0</td>
<td>47 bcde</td>
<td>13.0 ab</td>
<td>65.5 abcde</td>
<td>10134 bcdefghi</td>
</tr>
<tr>
<td>INT</td>
<td>6709VT3PRO</td>
<td>Integra</td>
<td>34267</td>
<td>ab 68 bcd</td>
<td>0.3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>51 abcde</td>
<td>13.9 a</td>
<td>65.2 cde</td>
<td>10116 defghi</td>
</tr>
<tr>
<td>MY</td>
<td>2Y767</td>
<td>Mycogen</td>
<td>32283</td>
<td>ab 70 a</td>
<td>1.7</td>
<td>3.7 ab</td>
<td>0.3</td>
<td>0</td>
<td>53 ab</td>
<td>12.8 ab</td>
<td>61.4 g</td>
<td>10032 efghi</td>
</tr>
<tr>
<td>BAG</td>
<td>SX5409RR</td>
<td>Baglietto Seeds</td>
<td>34993</td>
<td>a 66 e</td>
<td>0</td>
<td>6.7 a</td>
<td>0</td>
<td>0</td>
<td>47 bcde</td>
<td>13.5 a</td>
<td>62.7 fg</td>
<td>9910 fgghi</td>
</tr>
<tr>
<td>NK</td>
<td>N61X-3110</td>
<td>Syngenta</td>
<td>35864</td>
<td>a 67 bcde</td>
<td>0.3</td>
<td>0.3 ab</td>
<td>0</td>
<td>0</td>
<td>56 a</td>
<td>13.0 ab</td>
<td>64.9 cdef</td>
<td>9408 gh</td>
</tr>
<tr>
<td>CP</td>
<td>6594SS</td>
<td>Croplan</td>
<td>34993</td>
<td>a 68 bc</td>
<td>0</td>
<td>0.6 ab</td>
<td>0</td>
<td>0</td>
<td>44 de</td>
<td>13.2 ab</td>
<td>58.7 h</td>
<td>8785 hi</td>
</tr>
<tr>
<td>MY</td>
<td>21794</td>
<td>Mycogen</td>
<td>30347</td>
<td>b 68 bcd</td>
<td>0.7</td>
<td>3.3 ab</td>
<td>0</td>
<td>0</td>
<td>51 abcde</td>
<td>13.4 ab</td>
<td>55.2 i</td>
<td>8092 i</td>
</tr>
</tbody>
</table>

Average: 34648 68 0.6 1.8 0 0 49 13.2 64.1 10594

Coefficient of Variation (%): 7 2 137 147 0 0 9 4 6 13

Significant variety effect (P value): 0.0045 <0.0001 0.1259 0.0009 0.6217 N/A <0.0001 0.0004 <0.0001 <0.0001

1 Data were transformed for analysis. Arithmetic means are presented.
2 Average of only wo replications.
3 Yield adjusted to 15% moisture.
The 2014 season was a challenge that can well deserve an up-to-date congratulation of - “major shout out to all the peeps representin’ the winegrowing scene!” A difficult year ended generally well, with some scattered misfortunes. The harvest wrapped up the second week of October for most growers, although a few small blocks were harvested slightly after.

A very cold first week in December and the third year of drought did combine to cause winter injury and some die-back in very old vines and newly established vines less than fourth leaf in age. The season began only slightly ahead of schedule by long-term average, but under a very dry third year of drought. Even with most growers applying one or more mid-winter irrigations dry soil conditions forced everyone to irrigate more than average. Canopy growth was similar to last year, but after two dry years there were more reports of what might be called “drought-induced” potassium deficiency. Still, early cluster counts indicated a good but average harvest.

Two good rains at the end of February and into early March provided good short-term relief and helped vines off to a good start. Warm days were accompanied by very cool nights most days. Strong winds were a common occurrence throughout much of the year. Little early spring shoot damage occurred, but powdery mildew programs were a challenge.

Powdery mildew also caused some scattered problems in the usual suspects such as Chardonnay, but also popped up in others like Zinfandel (as in 2013). Lots of windy days and evenings, with variable winds throughout caused a few headaches. But most problem sites were able to deal with powdery mildew’s ever present threat.

Drought conditions fostered some scattered spider mite problems that became evident mid-season. It was difficult to control in some locations but overall not severe as might be expected for a third year of drought. Vine mealybug is still spreading throughout the county but more slowly now that it seems there are good materials for control and most growers are adjusting spray programs to prevent problems; as an ongoing cost of production. Leafhoppers did make a scattered surprise appearance later in the season. Variegated leafhopper (VLH) seemed to be the dominant species, as it prefers warmer later season conditions. VLH is a relative newcomer to Lodi, compared to grape leafhopper (GLH), but there are also sightings of a new arrival in the count, the Virginia creeper leafhopper (VCLH). This species warrants watching, particularly if some blocks are having new problems. The extent of the problem or risk is still being sorted out. Another invasive species of concern is the brown marmorated stink bug (BMSB). It is well established in the downtown and mid-town areas of Sacramento and has been caught in other locations around the area as far south as Stockton. Currently it is only a problem in the Northeast U.S., but is a concern for fresh fruit growers and maybe everyone on the horizon.

Seasonal growing degree days (GDD) was above average ending at 4082. This was the highest total in the last 30 years but this compares to the last two drought years being right at long-term average. At the same time, the number of days in 2014 at or above 100˚ F for a maximum was 7 days; compared to the long-term average of 17 days per season.

Harvest began a little on the early side of average around August 1st, but at a moderate pace. As harvest progressed it became evident that most varieties had an average size crop at best. After two bumper crops, it seemed like a light harvest, but really very close to long-term average. There were exceptions as always, but in general many vineyards were close to average in yields and above average to very good in quality. Summer bunch rot or sour rot was scattered but more severe than recent years, especially in Zinfandel and some other tight cluster varieties.

Prices received by growers held steady, while for other growers dropped significantly. This mixed marketing environment was frustrating but the more manageable crop size may help next year and beyond. The good news is two-fold: wine sales are still on the positive trend and the county as a whole (including the American Viticultural Appellations within; of the Lodi, River Junction and most recently Tracy Hills), continue to confirm the regions place in providing quality fruit for quality wines, which are a value for consumers. Once again the ongoing challenges to comply with new regulations, control costs, an ongoing drought, and worldwide competition make for challenges that growers prepare for in the year to come. The

(Continued on page 8)
Livestock Lines Highlights

Irrigated Pasture. Irrigated pastures in our area lately have been invaded by smutgrass (*Sporobolus indicus*), a warm season perennial grass that is not palatable to livestock. Look at your irrigated pastures right now, if you see a lot of grass that looks like tall fescue from a distance, even though you have animals on the pasture, chances are you have smutgrass. There are no easy control methods to control one grass in a pasture without harming other grasses or the clovers found in the pasture. Using a rotary wiper to apply herbicide tends to be the best option. The wiper will apply the herbicide to the taller vegetation in the pasture, which should be smutgrass, leaving more desirable grasses and clovers untouched.

To view the above pictures in color please go to the following link: http://cesanjoaquin.ucanr.edu/news_986/Field_Notes_Newsletter/

(Continued on page 9)
Taxes from sale of livestock during drought. With the drought forcing many to sell cattle, especially breeding stock, the question of capital gains comes up. Federal and now State tax laws allow ranchers to defer tax on gains from sale of breeding stock. If the drought were to persist, the IRS can extend the period until the drought is over. Drought related sales from back as far as 2010 may also be affected by this extension. Contact your tax accountant for more information. [http://www.irs.gov/uac/Newsroom/Drought-Stricken-Farmers-and-Ranchers-Have-More-Time-to-Replace-Livestock;-30-States-Affected](http://www.irs.gov/uac/Newsroom/Drought-Stricken-Farmers-and-Ranchers-Have-More-Time-to-Replace-Livestock;-30-States-Affected)

Upcoming Society for Range Management Annual Meeting. Our local California Pacific Society for Range Management is hosting the Annual Meeting in Sacramento to January 30 – February 6, 2015. With California’s diverse rangelands from annual grasslands to Great Basic to Coastal Prairie and everything in between, as well as the diverse group of users, our theme is “Managing Diversity”. You will find a diversity in subject areas, everything from using smart phone apps to help manage your cattle and monitor your rangelands, weed control, the California Rangeland Conservation Coalition’s annual Summit, rancher forums, and much more will all be options to choose from. Our opening speaker will highlight how diversity can help in problem solving. Temple Grandin will speak about how people with different approaches can actually help solve problems working together. There will be a variety of tours offered on Wednesday, including one to our area that our San Joaquin-Stanislaus Cattlemen are sponsoring. The tour will make a first stop at the USDA Natural Resources Conservation Service’s Plant Material Center in Lockeford and then to Bev and Jack Sparrow’s ranch to discuss the challenges of grazing on annual grasslands in California. For complete information, please see our website: [http://rangelands.org/sacramento2015/index.html](http://rangelands.org/sacramento2015/index.html). For anyone who may be interested in meeting us at the Plant Material Center on February 4th, please contact me directly, 209-525-6800. I hope many of you take advantage of this great meeting being so very close to home.

![Image of a calendar with dates and events listed](image)

Theresa Becchetti
Livestock and Natural Resource Advisor
Stanislaus and San Joaquin Counties

Calendar of Events

**N. San Joaquin Valley Peach Day**
Tuesday, December 2, 2014, 8:30 am – 12:00 pm
Stanislaus County Agricultural Center Harvest Hall
Contact: Maxwell Norton, (209) 385-7403

**UC Alfalfa and Grains Symposium**
December 10-12, 2014
Long Beach Convention Center
Issues to be covered include water, pest management, and the economics of alfalfa, forages, and grain crops. For program and registration information, see [http://ucanr.edu/sites/Alfalfa/](http://ucanr.edu/sites/Alfalfa/)

**San Joaquin County and Delta Field Crops Meeting**
Friday, January 9, 2015, 8:30 am – 12:00 pm
Robert J. Cabral Agricultural Center, 2101 E. Earhart Ave., Stockton
Contact: Michelle Leinfeld-Miles, (209) 953-6100, mmleinfeldermiles@ucanr.edu

**California Cherry Research Review**
Tuesday, January 27, 2015
Robert J. Cabral Agricultural Center, 2101 E. Earhart Ave., Stockton
Contact: Joe Grant, UCCE San Joaquin County (209) 953-6100

**N. San Joaquin Valley Processing Tomato Production Meeting**
Thursday, January 29, 2015, 8 am - 11 am
Doubletree Hotel, 1150 9th Street, Modesto
In conjunction with the California Tomato Growers Association 68th Annual Meeting
For info on educational portion, contact Brenna Aegerter, (209) 953-6114, bjagearter@ucanr.edu
For info on CTGA luncheon meeting and exhibition: (916) 925-0225 or ctga@sbcglobal.net

**63rd Lodi Grape Day**
Tuesday, February 3, 2015
Contact: Paul Verdegaa, psverdegaa@ucanr.edu, (209) 953-6119
Notes from the Field

November 2014

The University of California prohibits discrimination against or harassment of any person employed by or seeking employment with the University on the basis of race, color, national origin, religion, sex, gender identity, pregnancy (which includes pregnancy, childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition (cancer-related or genetic characteristics), genetic information (including family medical history), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services (as defined by the Uniformed Services Employment and Reemployment Rights Act of 1994: service in the uniformed services includes membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services) or any person in any of its programs activities. University policy also prohibits retaliation against any employee or person seeking employment or any person participating in any of its programs or activities for bringing a complaint of discrimination or harassment pursuant to this policy. This policy is intended to be consistent with the provisions of applicable State and Federal laws. Inquiries regarding the University’s equal employment opportunity policies may be directed to Linda Marie Manton, Affirmative Action Contact, University of California, Davis, Agriculture and Natural Resources, One Shields Avenue, Davis, CA 95616, (530) 752-0495.

The University of California working in cooperation with San Joaquin County and the USDA.