Field Notes
San Joaquin County
MAY 2020

University of California
Agriculture and Natural Resources

PRACTICAL • CONNECTED • TRUSTED

Reports of Lilac Borer Infestation in Commercial Olive Orchards in the North San Joaquin Valley

Background

In July of 2019, we visited a 1-year-old olive orchard, about 100 acres in size, in the Lodi area of San Joaquin County. A high percentage of trees in the orchard were found to be infested with a type of caterpillar called a borer. Affected trees showed a symptom of yellowish-green leaves (Fig. 1). The trees were wilted and ultimately died. The stems of those trees were girdled 1-2 feet from the ground (Fig 2). By the end of the fall, the grower had to pull about 20-30% of the trees from the orchard. We also visited some other mature orchards (7-10 years old) which had trees with a similar type of larvae attacking the trunks, limbs, and branches. After carefully looking at the morphological characteristics of the larvae, and based on the nature of feeding, we tentatively concluded that the borer in these olive orchards was lilac borer (also commonly known as ash borer). We recommended putting out some lilac borer pheromone traps in late-summer. However, none of the traps captured any moths, as the adult flight likely had ended before the traps were set. This year, I coordinated with local pest control advisers, and we deployed the lilac borer traps in early March in several olive orchards in the Lodi area. We are now getting reports of activity of a fairly large lilac borer population in the area. We deployed approximately one trap per 20 acres of the orchard, representing several orchards in the area.

Fig. 1. Yellowish-green leaves on young olive trees is the early indicator of lilac borer infestation.

Fig. 2. One-year-old olive tree girdled by lilac borer attack.

Lilac borer and pest status in California

Lilac borer, *Podosesia syringae*, is a clearwing moth larva. The adult has clear hind wings and brown forewings (Fig. 3).

(Continued on page 2)

Table of Contents:

These moths resemble a paper wasp in patterns and appearance but do not have a stinger. Adults emerge in the spring and likely continue to emerge through mid-summer. Adults are known to emerge around mid-morning from the infested wood. They mate, and the females are ready to lay eggs within an hour of mating. Egg-laying occurs on the rough bark or wounds of the tree. One female can oviposit over 350 eggs over a 7 to 10-day period after emergence. The eggs hatch in about 10-14 days, depending on the

Fig. 3. Lilac borer adult (Photo: https://organolawn.com/tree-care/insect-control/trunk-injections/).

temperature, and young larvae bore into and feeding under the bark. The larvae grow up to 1-inch long and settle into the heartwood (Fig. 4), usually closer to the ground. These larvae turn into pupae before emerging as adults the next spring. Lilac borer has one generation per year but has an extended period of adult emergence. Lilac borer was introduced to California in the 1970s and has been present in the Central Valley since then. However, the infestation in the past was limited to landscape trees and was not an issue in commercial olive plantations. Other known host plants of this borer include ash, lilac, and privet. Although lilac borer is also called ash borer, it is not the same as the Emerald ash borer, *Agrilus planipennis*, a beetle that has caused extensive damage in forests and other landscape trees in the Midwest and eastern United States. Emerald ash borer is a quarantine pest in California, while lilac or ash borer is not.

Fig. 4. Overwintered lilac borer in olive plant stem (Photo: Andy Vignolo).

Monitoring

Lilac borer pheromone lure is available commercially from several vendors (e.g., Trece, Great Lakes IPM, AlphaScents, Evergreen Growers, etc.) and can be used with delta traps. The lure attracts male moths even from a long distance. Weekly monitoring is recommended from March through July. Other monitoring methods include examining the base of the trees for fine sawdust-like larval excreta (i.e., frass), oozing sap, a circular exit hole, and the shed pupal skins sticking out from the infested wood (Fig. 5). This year, a pest control

Fig. 5. Pupal skin shed sticking out from the olive limb.

adviser reported the first capture of a lilac moth in the Lodi area around mid-March. However, the consistent period of moth capture usually occurs in early April in the majority of our orchards (Fig. 6). In both light and heavy pressured blocks, trap activity has increased, and an insecticide spray was made on April 21st in eighteen blocks and April 24th in five additional blocks. There were low moth counts on April 24th after the spray (Fig. 6). Moth activity resumed within 7 days, which is not surprising, as the spray was targeted for young larvae. We will provide additional updates at the end of the season. Total number of moths captured from heavy and low-pressure blocks were 563 and 114, respectively.

(Continued on page 3)

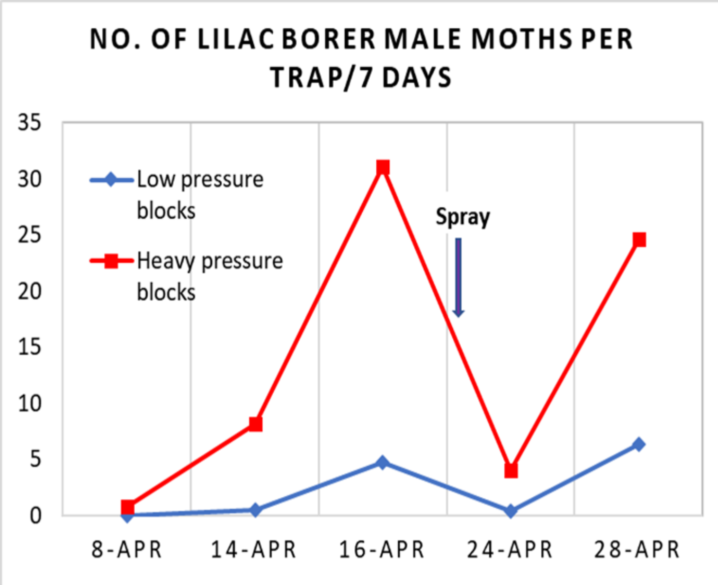

Fig. 6. Lilac borer trapping data expressed as average moth counts/trap/7 days. Low-pressure blocks (*N* =20) had ≤ 20 cumulative number of moths per trap (to date), while heavy pressure blocks (*N* = 12) had >20 moths/trap.

Management

Lilac borer is a new pest of commercial olive production in California. Cultural practices such as removing the infested and dead branches should help reduce the population over time. For young trees, heavy pruning just before and during the flight should be avoided to minimize infestation through these fresh wounds. There have not been any trials conducted in California to look at the efficacy of insecticides. However, based on the literature and practice from other states in non-crop systems, a timely spray of the trunk or whole tree with larvicidal and other contact insecticides may manage this pest. Insecticides that have been proven effective against this borer in other systems include bifenthrin, carbaryl, permethrins, and chlorantraniliprole. Imidacloprid, a systemic insecticide often used against tree borers, is not effective against lilac borer and should not be used. The bottom line is that the insecticide should target the recently hatched larvae before they bore into the bark and wood. With an extended period of adult emergence (6-8 weeks) and consequently egg-laying, multiple sprays may be necessary to cover the entire flight. Seasonal pheromone trap counts should provide a reasonable estimation of the beginning, peak, and cessation of the adult flight, and this information should be used to decide spray timing. Always check the label before using any pesticide products in the targeted crop.

Acknowledgments

Special thanks go to Andy Vignolo, local pest control adviser, for his coordination and efforts in collecting trapping data and providing photos. I would like to thank Mohamed Nouri (Orchard Systems Advisor, UCCE San Joaquin), and all participating growers and PCAs.

Jhalendra Rijal, IPM Advisor, Stanislaus, San Joaquin, and Merced counties

Livestock Update

We are all witnessing history. Something that will shape the next generation of kids (Gen Z) and our futures. Livestock prices are dropping, while at the same time there is a record demand for meat. Local grocery stores have limited supplies and messages are going out that, due to packing plants being shuttered because of COVID-19, there may be even less supply. Meanwhile, live animals still need to be marketed up and down the chain. Now, more than ever, do the shortcomings of our food system really rise to the forefront. Hopefully, out of all of this will come something positive that improves our food system with potential benefits for producers more than our current system. Time will tell.

As you move forward with your spring work under our current shelter in place orders, I hope this article by my colleagues and our Vet Specialist gives you some guidelines to keep your family and friends safe. Agriculture, and now packing plants, are essential businesses, and you need to continue operating while also ensuring a reduced risk of spreading COVID-19.

Theresa Becchetti, Livestock and Natural Resources Advisor, Stanislaus and San Joaquin counties

Spring Cattle Work and COVID-19

The COVID-19 pandemic has much of the California population staying home in an effort to reduce the spread of the virus. Across the state, many grocery stores have had shelves emptied of food and other day-to-day necessities as people have stockpiled these essentials. Bob Moller, a rancher in Shasta County, recalled this was similar to the grocery stores of 1945, noting items were out of stock or customers were limited in the number of items they were allowed to purchase.

Agriculture workers are considered "essential" and are allowed to tend crops and care for livestock. Beef cattle ranching differs from more intensive agriculture production as much of the work (fixing fences, feeding, checking cattle) is generally a solitary activity. This changes as spring work commences. While the kind of work may differ between ranches with spring calving cows and fall calving cows, establishing and following some simple protocols should reduce the risk of contracting and spreading COVID-19. Though many working cattle are not in the high-risk category, many will be, and future contact with someone that is will be inevitable, so precaution is necessary.

1. Maintain the Center for Disease Control Social Distancing recommendation of six feet. This might mean:
    A. Taking separate vehicles to the work site.

(Continued on page 4)

B. Requiring that the chute operator conduct all the work associated with the animal in the chute (shots, tags, etc.).

C. Developing a system to bring cattle to the chute such that the crew maintains at least this distance.

D. Branding crews might need to change the process up with just one person throwing the calf and changing the ropes and only one person conducting their assigned task at the calf at a time. Crews should adhere to social distancing while waiting to conduct their task.

2. Tools and Equipment:
   A. When a task is assigned to someone, provide them with the equipment to do the task (syringe, ear tagger, etc.). Have them wipe the tool down with a disinfectant. For syringes, just wipe the syringe handle--do not spray alcohol or something else on the vial. Do not expose modified live vaccines to disinfectants as they may inactivate the vaccine. Let the person assigned to the task do the job—resist the urge to ear tag the animal while they are refilling the syringe. The tool needs to be in their control.

   B. Provide plenty of hand sanitizer and wipes to disinfect equipment and tools and/or wear gloves. Also remind everyone to not touch their face when working in a group.

   C. Consider avoiding meals together. It might be better to give the crew a gift card for takeout.

3. Limit the number of people participating:
   A. The virus spreads readily through community contact. To reduce the possibility of spread, knowing who the crew is and having an idea of who they have been in contact with should help. If at all possible, try to work with people who are not a high risk.

We recognize that not all of these ideas will be possible all the time; however, we urge beef cattle producers to consider the severity of this pandemic and their importance as food producers as they plan their spring livestock work.

Larry Forero, Shasta and Trinity counties; Sheila Barry, Bay Area Counties; Josh Davy, Tehama, Glenn and Colusa counties; and Dr. Gabriele Maier, CE Specialist for Beef Cattle Herd Health and Production

Nitrogen Fertilizer Management in Wheat

Over the last several months, a team from UC Cooperative Extension has been conducting trials with wheat growers to better understand nitrogen (N) management under local conditions. The trials are funded by the CDFA Fertilizer Research and Education Program and demonstrate practices that UC Small Grains Specialist, Mark Lundy, has been investigating for several years, namely the use of N-rich strips in the field, a soil nitrate (NO_3^-) quick test, handheld canopy reflectance devices, and drone imagery. The N-rich strips serve as zones of soil N adequacy, and the soil NO_3^- quick test, canopy reflectance devices, and drone imagery serve to characterize differences between the zones of N adequacy and the rest of the field. Our trials implement these practices across variable soil and climatic conditions so that we can extend the information across wheat-growing regions of the state. Integral to these trials is identifying growers who are interested and able to shift at least half of their seasonal N budget from a pre-season to an in-season N application. Our goal is to help growers and consultants learn and implement these practices to guide nitrogen fertilization in wheat, for economic and environmental efficiency.

At the Delta location on Tyler Island, we are trialing these practices on high organic matter soils. The field has two different soil types: Gazwell mucky clay and Rindge mucky silt loam. The Gazwell series is characterized as having approximately 11 percent organic matter in the top foot of soil, and the Rindge series has approximately 18 percent organic matter in the top foot of soil. The grower's pre-plant aqua ammonia application provided approximately 60 pounds of N per acre, and the wheat was planted on November 15th. After planting, we flagged off three zones for the N-rich strips – two in the Gazwell soil and one in the Rindge soil. Each strip was 90 feet wide by 180 feet long. (While, in practice, N-rich strips do not need to be this large, we made ours this large so that we could also make observations using satellite imagery.) We took soil samples and performed the soil NO_3^- quick test (described below). On November 25th, we applied urea to the N-rich strips at a rate of approximately 62 pounds of additional N per acre. We timed our application ahead of a storm in the following days (approximately 0.5 inches, according to the Staten Island CIMIS station).

The soil NO_3^- quick test is performed in the field and provides a quick, inexpensive estimate of nitrogen availability in the soil. We performed the quick test just after planting to establish baseline conditions and then again each time we used the canopy reflectance devices and collected drone imagery, which we started at tillering (Feekes 2-3, Figure 1). For the quick test, it is important to get representative soil samples,

(Continued on page 5)

staying away from field edges and from the borders of the N-rich strips. We collected and aggregated several sub-samples from the top 12 inches, from both inside and outside the N-rich strips. The soil was mixed with a calcium chloride solution, and then the test strips were dipped into the soil-water solution. The color on the strip is compared to the color chart on the bottle. In an organic soil, we consider a test strip reading of 10 ppm and above to be adequate soil N, and in a mineral soil, a test strip reading of 20 ppm and above would be adequate. (This is due to the higher bulk density of a mineral soil compared to an organic soil.) The quick test reading is not the same as what a lab would determine for the same sample. Mark and his team are preparing an online tool that will convert the quick test reading to the lab-equivalent value of NO_3^--N and the fertilizer equivalent in pounds of N per acre, based on soil type. We would expect to see higher soil NO_3^- in the N-rich strips compared to the surrounding field unless heavy rainfall resulted in leaching. (Consider the benefits of only leaching N from small plots rather than the entire field!) For fertilizer decision-making, the quick test readings are best considered in combination with plant reflectance measurements (see below). On their own, however, they do provide an estimate of nitrogen fertilizer equivalency that is available to the crop.

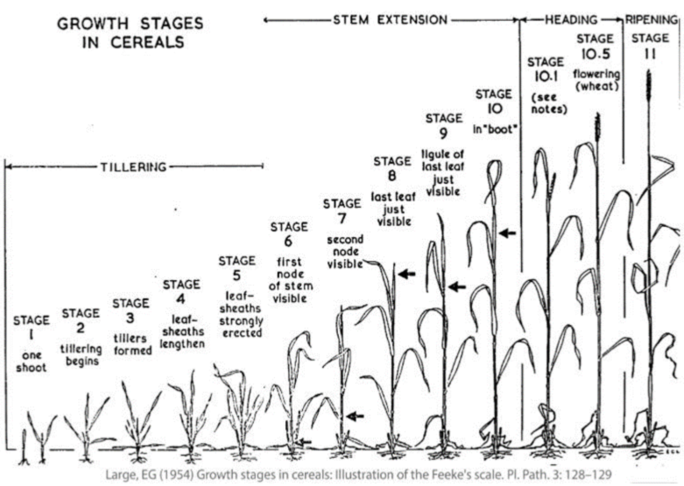

Figure 1. Feeke's scale of cereal growth stages.

We have used Greenseeker NDVI devices and drone imagery to characterize canopy color of the N-rich strips and the surrounding field (Figure 2). NDVI stands for normalized difference vegetation index and is a measurement of green vegetation that picks up differences that the human eye cannot detect. It allows us to make inferences about canopy cover and plant N status, and when considered with soil NO_3^- status, we can have even more confidence in our fertilization decisions. For example, if soil NO_3^- differs between the N-rich strips and surrounding field, and we observe a difference in canopy reflectance, then we have confidence – based on previous years of research – that the crop will respond to additional N fertilizer. If we don't see a difference in canopy reflectance, we would recommend postponing application of additional fertilizer and continue monitoring, or we would recommend adjusting the application to account for the available soil N. At tillering, we started sampling for soil NO_3^- and canopy reflectance on 14-day intervals. In February, we started seeing slight differences in Greenseeker canopy reflectance between the N-rich strips and the surrounding field, but the differences were not evident in the drone imagery. There was no rain on the horizon at that time and no opportunity to apply additional N. By early -March, the grower made the decision not to apply additional N this year, and we, in UCCE, needed to reduce activities due to the Covid-19 outbreak. We will, however, harvest the trial to determine whether there are yield or quality differences between the N-rich strips and the field.

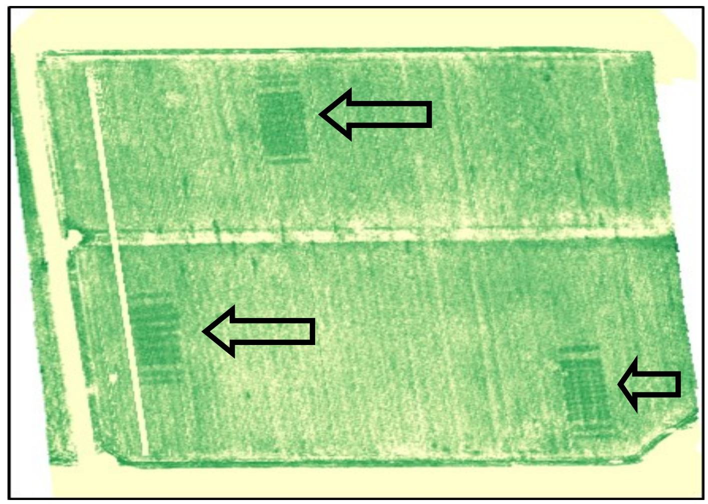

Figure 2. Drone image of a field in Solano County where N-rich strips are implemented. (Photo courtesy of Mark Lundy and Taylor Nelsen, UC Davis.)

In the future, I will use my blog (https://ucanr.edu/blogs/sjcfieldcrops/) to extend further information about the trial, including data for the Delta site. More immediately, the research team will be producing a series of weekly articles in the month of May that will be posted to the UC Small Grains Blog (https://ucanr.edu/blogs/smallgrains/) to provide more in-depth information on each of the practices. We will also be creating videos to demonstrate how to implement these practices. Consider subscribing to both my SJC and Delta Field Crops Blog and the UC Small Grains Blog to be notified of new content, and please don't hesitate to reach out to me to discuss these topics further.

Michelle Leinfelder-Miles, Delta Farm Advisor

Nutrient Management in Tomatoes

Improving our management of nutrients may allow us to maximize profits by maintaining or increasing yields while minimizing inputs. It is also becoming a part of regulatory

(Continued on page 6)

compliance, at least with respect to nitrogen management. The information below is not new, but I am just repeating it as a reminder of our current state of knowledge and the resources available to assist you in developing nutrient management budgets for processing tomatoes. For other crops, please see the California Fertilization Guidelines http://geisseler.ucdavis.edu/Guidelines/Home.html.

Nitrogen uptake. Most of the N uptake by processing tomato occurs between early fruit set and the early red fruit stage (i.e., the second and third months after planting). Uptake peaks at about 7 to 10 weeks after transplanting, with a maximum rate of about 5 pounds per acre per day. The bulk of the uptake is before day 80. Total uptake over the course of the season is about 250 pounds (this assumes a yield of 55 tons per acre). However, not all of that N must come from current season fertilization. On average tomatoes take up about 70 pounds of non-fertilizer N, but this will vary depending on how much residual N is available in the soil. A typical application rate for processing tomatoes is 180 pounds N per acre, although you can greatly improve your nitrogen management by making site-specific adjustments. This means taking into account your expected yield, and the N available in your field(s) from other sources (crop residues, soil residual, and irrigation water). To develop a nitrogen budget, read more below, and you can use a simple online calculator that uses information from your field(s) (Figure 1, and see http://geisseler.ucdavis.edu/Tomato_N_Calculator.html).

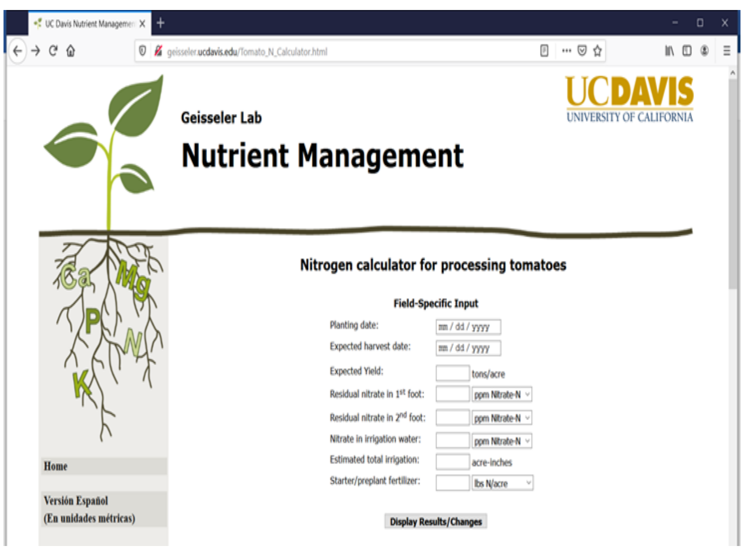

Figure 1. A simple online calculator to develop a site-specific nitrogen budget for processing tomatoes. Available at: http://geisseler.ucdavis.edu/Tomato_N_Calculator.html.

Residual nitrogen and mineralization of crop residues. One third of N in aboveground processing tomato biomass is left in the field as residues (two thirds is removed with the fruit at harvest). This amounts to 80 to 100 pounds of N or more that is available once it has mineralized (released from organic molecules and converted into ammonium and nitrate which are available to the plant). Little is mineralized from residues in the fall (the soil is too dry) or in the winter (the soil is too cold). About half will be mineralized during the summer and made available to the following crop. Thus, roughly 45 pounds of N or more of the crop needs can be met from the decomposition of the previous years' residues. This would be in addition to residual nitrogen left over from the previous year's fertilization, as well as mineralization from soil organic matter. If you need to be convinced that there is nitrate available, consider testing the soil before transplanting or before the first N application (see below).

Soil testing – Nitrogen. Soil tests can be done to determine the amount of soil nitrate present in the rooting zone. This should be done either before transplanting or before the first N application. Consider sampling and testing separately in the top foot as well as the second foot. We know that there can be significant variation across the field, so do enough sub-samples that the composite sample will be representative of the field. We don't have good information on whether all this nitrate is truly available to the crop, particularly because with buried drip irrigation, the soil surface and the shoulders of the bed are dry and not colonized by roots. Therefore, we may want to adjust a little the available nitrate. What we are using currently is the assumption that in the top foot, 50% of the nitrate is available to the crop, while in the second foot, 90% is available. You will apply these percentages to your soil test results to decide how much credit to apply to your budget (the online calculator makes these adjustments automatically!).

Potassium uptake peaks at a rate of around 50 lbs K_2O per acre per week around 10 to 11 weeks after transplanting. Potassium can be applied pre-plant, but fertigation via the drip system or water-run applications in furrow-irrigated fields can be useful to supply K in advance of periods of peak demand. Over the course of the season, processing tomatoes will take up 300 to 450 lbs of K_2O. Depending on yield, 250 to 350 pounds or more of this is removed with the crop. Higher yields result in higher removal rates (roughly 6 pounds of K per ton of fruit). If fertilization levels are below that which is removed in the crop, then you are essentially mining K from the soil. Depending on your soil K levels (see next paragraph about testing), fertilizing below crop removal rates may not leave sufficient K to supply future crops. Although rates of 200 to 300 pounds K_2O may sometimes be warranted to maximize yield and fruit quality, 100 pounds K_2O is generally considered to be the rate with the greatest economic return. In any case, potassium fertilization is generally not warranted unless soil tests indicate a problem.

Soil testing – Potassium. Most soil analytical labs use ammonium acetate extraction to assess soil K content. Using this method, soils with less than 150 ppm extractable K

(Continued on page 7)

would be considered low in potassium; a yield response would be expected from K fertilization. Between 150 and 250 ppm, a yield response is considered possible if K is less than 2% of the total cation exchange capacity. Above 250 ppm, no yield response is expected. Be aware, however, that soil extractable K is a useful but imperfect indicator of K availability to plants. There are more accurate tests for available K, but these are not typically offered. Also be aware that soil physical characteristics (structure, compaction, aeration, etc.), management practices (irrigation method, timing and volume) and the health of the root system all influence root density and function and can also affect K availability to the crop.

Brenna Aegerter, Vegetable Crops Farm Advisor

By-Product Management Practices on California Dairies

By-product feeding is a common practice on California dairies. From a recent survey, California dairies reported feeding 58 unique by-products; 89% of dairies that responded to the survey fed by-products. In addition to quantifying by-products fed on dairies, we also wanted to gauge how by-products are being managed.

Most dairies sent by-products out for nutrient analysis (Figure 1), but frequency of analysis varied (Figure 2). Very few dairies (n=7) sampled a feedstuff upon arrival at the farm for nutrient analysis. Almost half of responding dairies waited for a problem to arise before a by-product feedstuff was sampled for analysis. That may pose an issue with some by-products due to the highly variable nature of what's being delivered to dairies. Figure 3 shows the visible quality difference of almond hulls sampled from two neighboring dairies and depicts the importance of sampling. The sample to the right has fewer sticks and shells and has larger sized hulls.

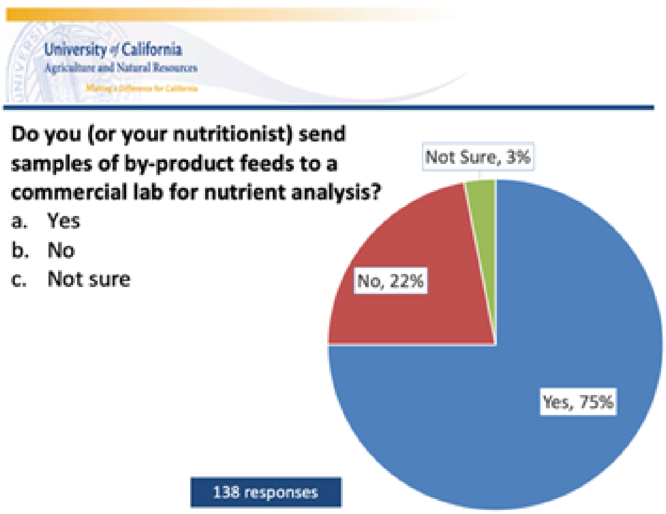

Figure 1. Are by-products analyzed for nutrients?

Talk with your nutritionist to determine if more frequent sampling makes sense for your farm for those feedstuffs that can vary in nutrient composition and/or physical components (debris pictured in Figure 3, for example).

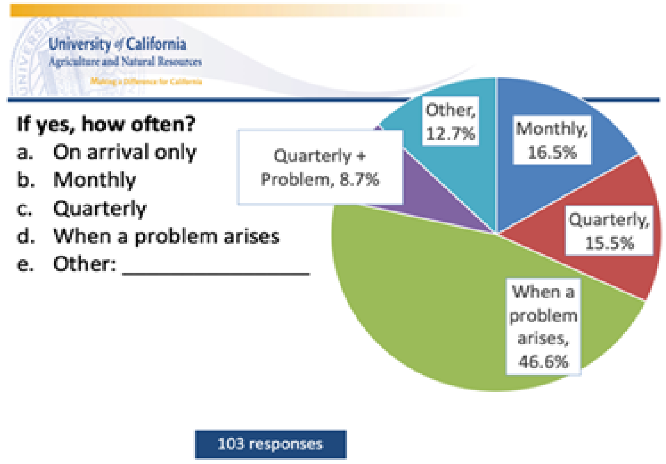

Figure 2. How often are samples analyzed?

Figure 3. Visible quality difference between two samples of almond hulls.

When a by-product was not analyzed, most dairies (80%) relied on their nutritionist to determine the values. The top five concerns when feeding by-products were reported as: availability (82%), quality of material delivered (69%), variability in load quality delivered (50%), molds, yeasts, other undesirable products (47%), and variability in load moisture content (43%). The question was "select all that apply", so the percentages do not add up to 100. By-product feeding on dairies can reduce ration costs, extend other commodities that are in short supply, and recycle otherwise "wasted" nutrients. Work with your nutritionist to ensure you're getting the best value from your feedstuffs, both in terms of getting what you paid for and value in the ration. To see more results from the survey, please visit: https://ucanr.edu/sites/CEStanislausCo/files/323974.pdf.

Jennifer Heguy, Dairy Advisor, Stanislaus, San Joaquin, and Merced counties

Ed DePeters, Department of Animal Science, UC Davis

Field Crop Trends in San Joaquin County from 1960 to 2018

There is a saying that hindsight is 20/20, and it seems especially appropriate this year to use the benefit of hindsight to evaluate trends in field crop production. Short-term trends in crop production are often unclear and may not necessarily indicate the direction of future production. Therefore, to gain a better understanding of field crop trends, we compiled crop production information from the San Joaquin County Agricultural Commissioner Crop Reports (https://www.sjgov.org/department/agcomm/crop_reports) from 1960 to 2018.

The earliest available reports were from the 1930s (1934-1939), but due to differences in commodity reporting and formatting in these early reports we decided to begin our compilation with the 1960 report. From each report, we collected information on total harvested acres, total production (tons), and estimated per acre production (tons/acre) for alfalfa hay, barley, corn silage, grain sorghum, oats, rice, and wheat. The estimated per acre yield for each crop was determined by dividing the total production (tons) by the total harvested area (acres). We recorded production information only when the crop category was reported consistently and chose not to record any information when a category changed from the initial designation. For example, in 1993, oats were reported as "Oats, Grain" rather than "Oats", so while oats were still being produced in San Joaquin County based on the 1993 report, to maintain consistency in the way we presented results in this article, "Oats" were not reported for 1993.

The trend of harvested field crop acres in San Joaquin County from 1960 to 2018 is shown in Figure 1. There was a clear downward trend of harvested barley acres from 1960 to 1997, while harvested alfalfa hay acreage exhibited a gradual decline from 1960 to 2018. In contrast, harvested corn silage acreage exhibited a noticeable increase from 1960 to 2018. Interestingly, harvested wheat acreage was much less than alfalfa hay in the 1960s but increased rapidly, exceeding harvested alfalfa hay acreage in 1980. However, after 1980, harvested wheat acreage began a gradual downward trend and was less than alfalfa hay and corn silage in 2018. We also evaluated the linear trend lines which describe how harvested acreage has changed over time and found that harvested alfalfa hay declined by an average of 138 acres per year from 1960 to 2018, whereas harvested barley declined by an average of 2,111 acres per year from 1960 to 1997. Harvested corn silage increased by an average of 690 acres per year from 1960 to 2018.

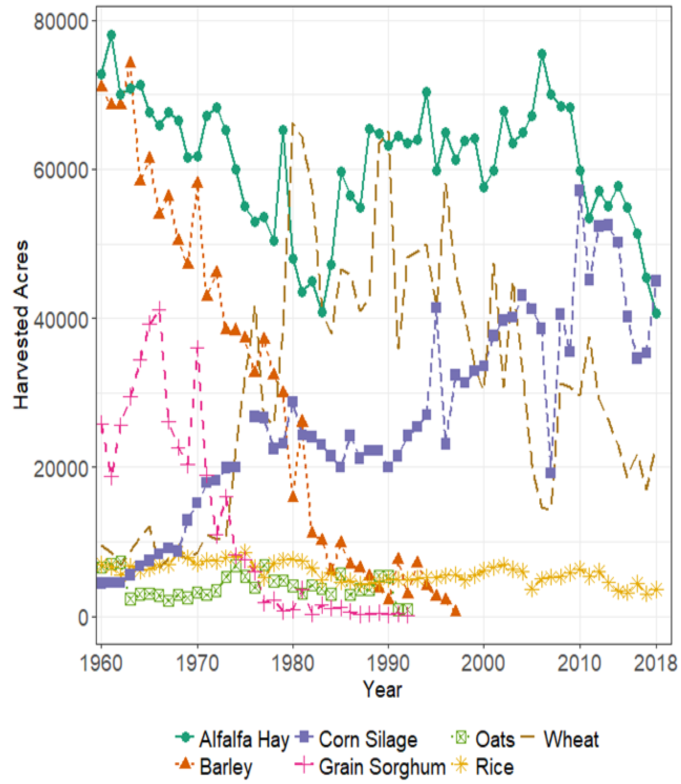

Figure 1. Harvested acreage of field crops grown in San Joaquin County from 1960 to 2018.

Total production averaged approximately 709,000 tons for corn silage and approximately 421,000 tons for alfalfa hay in San Joaquin County from 1960 to 2018 (Table 1 on page 9). Total production exceeded an average of 15,000 tons for barley, grain sorghum, rice, and wheat. The estimated average per acre production for these field crops ranged from one ton per acre for oats up to 26 tons per acre for corn silage. Maximum production per acre occurred in 1987 (barley), 1992 (alfalfa hay, grain sorghum, and oats), 2010 (wheat), 2011 (corn silage), and 2018 (rice).

The 2020 growing season will soon contribute to these trends, and while the most important growing season seems to be the one of recent memory it is important to keep long-term trends in mind to have a clear vision of the changing agricultural landscape of San Joaquin County.

Anthony Fulford, Nutrient Management and Soil Quality Advisor, Stanislaus, San Joaquin, and Merced counties

Adrian Yepez, Student Intern and Laboratory Assistant

		Harvested Acres			Total Production (Tons)			Production (Tons/Acre)		
Crop	Yrs	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max
Alfalfa, Hay	59	60,940	40,700	78,000	421,228	257,000	554,000	7	6	8
Barley	38	29,803	611	74,100	52,932	1,100	137,000	2	1	2
Corn, Silage	58	26,804	4,460	57,100	709,082	66,300	1,670,000	26	17	32
Grain Sorghum	33	12,232	172	41,200	32,450	462	115,000	3	2	4
Oats	33	4,053	900	7,320	4,410	1,540	13,700	1	0.5	3
Rice	59	5,860	3,060	8,650	19,430	10,700	29,000	3	2	5
Wheat	59	30,692	6,500	66,216	81,326	12,300	198,042	3	2	3
***Yrs are the number of years data was collected and reported in the San Joaquin County Agriculture Report (1960-2018).**										

Table 1. Average (Avg), minimum (Min), and maximum (Max) for harvested acres, total production (Tons) and production per acre(Tons/Acre) for field crops grown in San Joaquin County from 1960 to 2018.

Announcements

University of California Resources on COVID-19
The UC Davis Western Center for Agricultural Health and Safety. This website has extensive resources for agricultural employers, including guidance on managing employees with respect to COVID-19, hygiene and disease prevention posters, checklists as well as many materials in Spanish. The website also has links to information from other agencies. https://aghealth.ucdavis.edu/covid19

UC Cooperative Extension Produce Food Safety Resources. This website has links to resources from various sources and includes food safety information and guidance relevant to produce farms, farmers' markets, farm stands, U-Pick operations, community gardens, as well as the home consumer and home gardener. https://ucfoodsafety.ucdavis.edu/covid19-food-safety-resources

UCCE Blog post on PPE shortage for agricultural pesticide applicators.
https://bit.ly/2Knj34S

Other resources:
California DPR list of N95 alternatives for pesticide handling:
https://www.cdpr.ca.gov/docs/whs/pdf/n95_alternatives_for_pesticide_handling.pdf

USDA Guidance on the use of respirators, facemasks, and cloth face coverings in the Food and Agriculture Sector:
https://www.fda.gov/food/food-safety-during-emergencies/use-respirators-facemasks-and-cloth-face-coverings-food-and-agriculture-sector-during-coronavirus? (short url: https://tinyurl.com/yckvg7xa)

American Farmland Trust

A Message from a Partner Organization: Almond, grape, and vegetable growers wanted for soil health trial

Cover crops, compost applications, mulching, and reduced tillage have been shown to provide various soil health benefits, including improved soil tilth, increased water retention and water use efficiency, increased soil organic matter, and reduced dust, crusting, and erosion.

The American Farmland Trust is seeking growers to help us implement a three-five-year field trial to measure the impacts and benefits of cover cropping, compost applications, and reduced tillage to soil health. The trial involves planting a cover crop, applying compost, mulching, and/or reducing tillage to a small portion of the field or orchard (treatment plot), and leaving a portion not planted to a cover crop, not composted, or not mulched (control plot). Additional management practices may be considered, if desired. Funds to support management costs and technical assistance can be provided. The grower must be willing to allow soil sampling and host several demonstration sessions in the field or orchard. ***No management changes are required to participate in this project.***

If you are interested in participating or have more questions, please contact Paul Lum with AFT (707) 480-1893; Plum@farmland.org

UC
CE

University of California
Agriculture and Natural Resources

Cooperative Extension
San Joaquin County

2101 E. Earhart Ave., Suite 200
Stockton, CA 95206-3949

Non-Profit Org.
US Postage
PAID
Stockton CA
Permit No. 2

Notes from the Field

May 2020