University of California
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Cooperative Extension, Stanislaus County

VEGETABLE VIEWS

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2020 Research Projects

First of all, I hope you and your family are safe and healthy in this unprecedented situation. As you all know, the whole country has been conducting various actions to reduce the risk of spreading COVID-19 while still maintaining the operation of essential businesses and industry. The University of California Agriculture and Natural Resources (UC ANR) has actively taken protective measures to guide employees to implement telecommuting protocols. With the official social distancing guidelines as well as other required protective measures, all committed research projects must first be approved by UC ANR Administration before moving forward. If safety protocols cannot be maintained, projects will be postponed. Under these circumstances, some projects started earlier in 2019 with already collected data will be excluded for now. Despite this pandemic challenge, one thing that will not change is our goal to provide science-based information and informed guidance to address stakeholder's practical concerns regarding their vegetable production and operation. In this newsletter, I will provide an overview of the approved 2020 research projects, categorized by crop.

In This Issue

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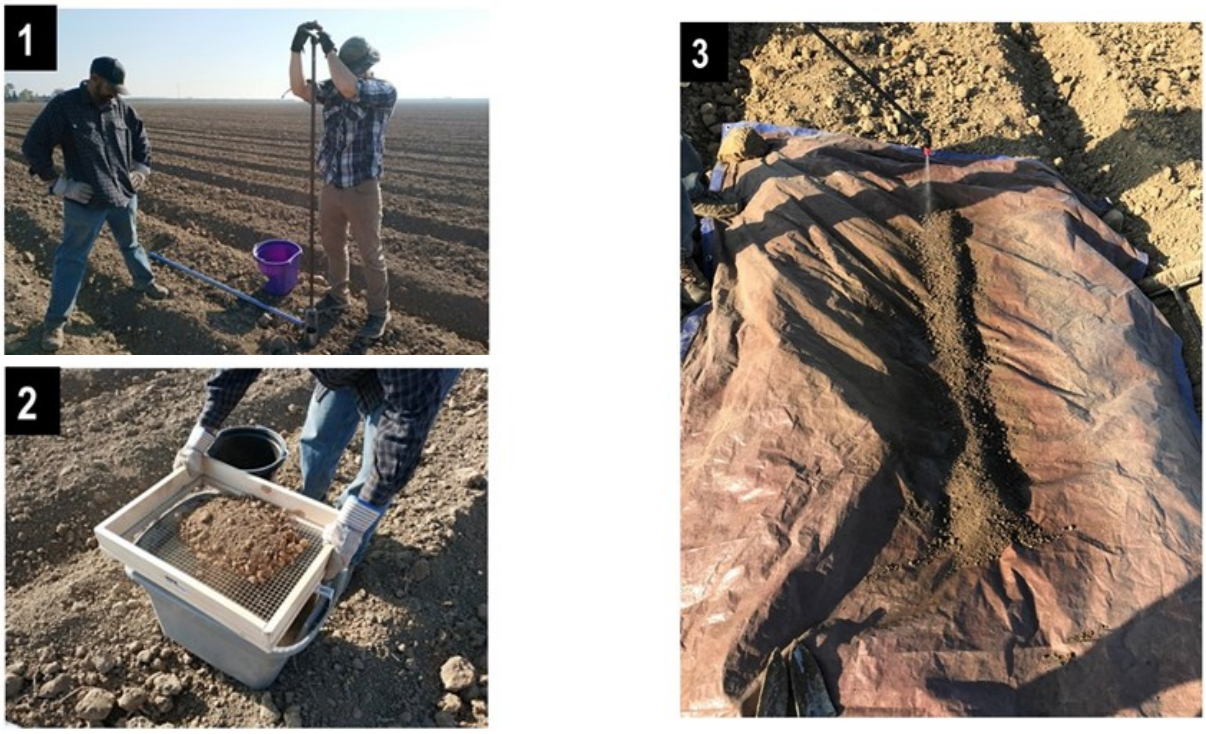
Processing tomato:

Influence of compost application rates on nitrogen management and processing tomato productivity and quality

The goal of the project is to develop a better understanding of how fall-applied compost rates influence nitrogen use efficiency of the following year's processing tomato. Three rates of green waste-based compost (5, 10, and 15 tons per acre) were broadcasted to the designated plots in November 2019. After compost application, soil was sampled from each treatment and put in a bag. Each bag was then buried at 6 inches below the tomato bed. For each treatment, a total of 12 bags were buried in November 2019. From November 2019 to April 2020, two bags were taken out of the tomato bed each month and brought back to the lab for soil incubation. Processed samples were then sent to UC Davis Analytical Lab for analyzing nitrogen mineralization. The 6-month data provides the evolvement of nitrogen mineralization with and without compost applications. The data collected will provide a baseline assessment of soil nitrogen status at tomato transplanting and prediction to the later growth stages.

This project is financially supported by the California Tomato Research Institute and collaborated with Dr. Costanza Zavalloni from CSU Stanislaus and Tom Maring from Maring Farms Inc. as the grower cooperator in Patterson.



Picture 1-3: Soil samples were taken (1) followed by sieving (2) and moisture adjustment (3).

Picture 1-5: Moistened soil was filled into the bag aligning to the volume line (1, 2, and 3) followed by burying at 6 inches below tomato beds and covering the soil (4 and 5).

Continued...2020 Research Projects

Evaluation of rootstock-scion combination on grafted processing tomato yield and quality

In 2020, the UC ANR tomato grafting team will continue the evaluation of the production of grafted processing tomatoes. Together with Dr. Brenna Aegerter from San Joaquin County, we will implement a trial near Stockton to assess the influence of several rootstocks on yield and quality of different commercial tomato scion cultivars. Besides the grafting combinations, we will also study the impact of reduced transplant population to better validate the economic viability of grafting practice.

The funding for this project is from the USDA Specialty Crop Research Initiative. Grafted transplants will be produced by the California MasterPlant in Tracy.

Basil:

Performance of Sulfentrazone and Acifluorfen on basil production

Screening pre-emergent herbicides for their applicability on weed control of culinary herbs such as basil continues to be a priority for California leafy vegetable growers. Collecting performance data of these herbicides will facilitate the registration process to provide growers more choices for chemical weed control and reduce labor costs for manual weeding. The first year's evaluation trial was conducted in 2019 with funding support of Western Region IR-4 and cooperation of Ratto Bros in Modesto. Results have been posted in the January 2020 Issue of the Vegetables West (https://vegetableswest.com/2020/01/01/read-january-2020-issue/).

The evaluation trials will continue in 2020 with some treatment modifications. Acifluorfen was added as another trial herbicide. These trials will compare different application rates with grower's standard practice on crop injury, weed elimination, and leaf fresh biomass. Stay tuned to the program website (http://cestanislaus.ucanr.edu/Agriculture/Vegetable_Crops/) and the newsletter updates for project progress.

Besides the approved trials, I will continue monitoring crop growth and health across the region. Therefore, please feel free to contact me with any questions regarding vegetable growth (209-525-6822; zzwwang@ucanr.edu). In 2020, crop disease, pest, and abiotic growth disorders are still of particular interest.

Personal Protective Equipment in Short Supply for Farm Workers during the COVID-19 Crisis

The UC IPM recently put together a news release regarding the availability of Personal Protective Equipment (PPE) and to offer suggestions for alternatives to help growers manage the supply shortage under the pandemic challenge. The news release below also includes photos which can be downloaded at https://bit.ly/2Knj34S.

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EDITORS: Photos can be downloaded at https://bit.ly/2Knj34S

PPE in short supply for farm work during the COVID-19 crisis

While most Californians are staying home to slow the spread of the novel coronavirus, California farmers, farmworkers and other agricultural professionals are out in the fields and packing houses working to produce food. With increased demand for personal protective equipment, or PPE, to protect against COVID-19, these essential workers are facing shortages. Agricultural commissioners in 28 counties are hearing from farmers who are having trouble getting PPE for their employees and farmers in another 11 counties who are worried about running out of PPE in the next month or two, according to a California Department of Pesticide Regulation survey.

Gloves, N95 respirators, coveralls and other gear that workers wear to protect themselves from COVID-19, pesticides, dust and other health hazards are in short supply as priority is given to health care workers during the pandemic.

To reduce the spread of COVID-19, workers may wear homemade face coverings, but for applying pesticides, they must wear respirators specified on the pesticide product label, said Whitney Brim-DeForest, UC Cooperative Extension rice advisor.

Pesticide applicators may use gear that is more protective than required by the product label and regulations.

"Although this could change in the days ahead, half-mask and full-mask respirators are more available than disposable N95 respirators for now," said Lisa Blecker, coordinator for the UC Pesticide Safety Education Program.

Before the pandemic, 10% of N95 respirators from 3M went to health care, but that number is now 90%, the company said in a letter to distributors. This has led to significant backorders of PPE supplies for distributors.

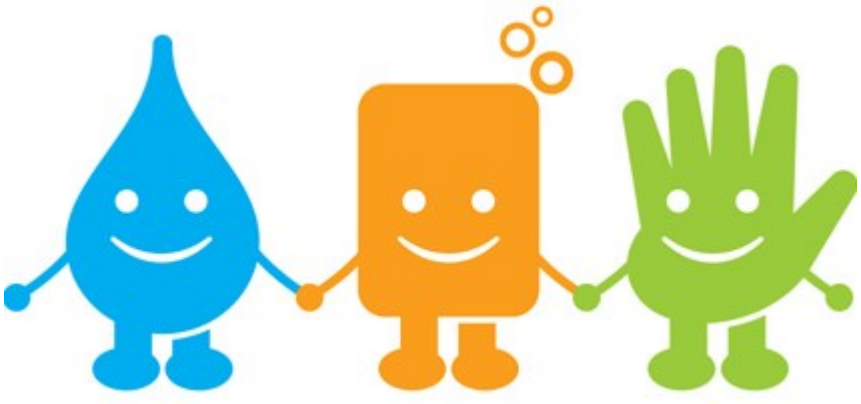
Carl Atwell, president of Gempler's, an online distributor of worker supplies, said that before the crisis, normal lead times for PPE was up to 10 days. He estimated disposable respirators will become available in the fall and other PPE supplies in August.

In the meantime, there is alternative PPE that agricultural professionals can use during the shortage.

Atwell suggests looking for lesser known brands of PPE as opposed to the first tier of choice: "It's sort of like searching for Purell hand sanitizer. Purell brand might be out of stock, but can you find a different disinfectant?"

On Gempler's website, the more recognizable Tyvek coverall from Dupont is sold out, however disposable protective clothing is available from other brands. Reusable chemical-resistant clothing is also available as opposed to their disposable counterparts. Supplies in high demand are reusable and disposable nitrile gloves, protective clothing, disposable respirators and certain protective eyewear, such as goggles and face shields.

For workers who will be applying pesticides, Blecker and Brim-DeForest offered some guidelines on how to meet PPE requirements as the shortage continues.



Continued … Personal Protective Equipment

General PPE requirements: "Remember, the label is the law," said Brim-DeForest. "PPE requirements for agriculture are not being loosened." The UCCE advisor recommends purchasing only what you need for the season and choosing reusable PPE whenever possible. Growers who have excess supplies of PPE can coordinate with their county agricultural commissioner or UCCE advisor to help other producers in their area.

Respirators: If you can't find the respirator required on the label, Blecker said, "Use an alternative, more-protective respirator. For example, if an N95 is required, you can use a half-mask with N95 particulate filters; these can be standalone filters or ones that attach to an organic vapor cartridge. You could also use a different pesticide that doesn't require a respirator. Consult with your PCA (pest control adviser) for options."

Gloves: Chemical-resistant gloves, usually 14 mil or more in thickness are required for most California pesticide applications and should be worn by mixers, handlers and applicators. If nitrile gloves are not available, viton and laminate gloves are universal chemical-resistant materials for most pesticide labels. If the glove material is specified on the label, that instruction must be followed.

"Disposable gloves less than 14 mil can be worn, but not for more than 15 minutes at a time," Blecker said. "Farmers should also note that thinner gloves cannot be layered on top of one another."

Coveralls: Coveralls should be worn when required by the pesticide label or when the signal word is "WARNING" or "DANGER," or when applying by backpack or airblast. "Coveralls can be made out of high-density polyethylene fibers (Tyvek and other brands), which are disposable, or cotton, which are reusable," Brim-DeForest said. "If reusable coveralls are worn, the employer must ensure employees are provided clean coveralls."

Goggles/face shields: Face shields are required for mixing and loading pesticides only if it's stated on the label. "If a face shield is unavailable, a full-face respirator can be used," Blecker said. "Goggles or protective eyewear should always be worn in California when handling pesticides, regardless of what the label says. The face shield, goggles or safety glasses must provide front, side and brow protection and meet the American National Standards Institute Z87.1 standard for impact resistance."

The UC Integrated Pest Management Program also covers these topics in their pesticide safety webinar series at http://ipm.ucanr.edu/IPMPROJECT/workshops.html.

For more information about PPE, contact your county agricultural commissioner or see the California Department of Pesticide Regulation's posters at https://www.cdpr.ca.gov/docs/whs/pdf/gloves_for_pesticide_handling.pdf and https://www.cdpr.ca.gov/docs/whs/pdf/n95_alternatives_for_pesticide_handling.pdf.

UC Agriculture and Natural Resources brings the power of UC research in agriculture, natural resources, nutrition and youth development to local communities to improve the lives of all Californians. Learn more at ucanr.edu.

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