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University of California
Agriculture and Natural Resources
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UCCE

Kern County Vegetable Crops

September 2020

UCCE Kern Vegetable Crops Program during COVID 19

Over the past several months COVID-19 has impacted a lot of people in the United States and globally and led to an unprecedented social, economic, and public health crisis. Although agriculture is an essential industry and we need it more than ever to maintain the food supply chain, it is also coping with the challenges posed by COVID-19. Like many other agriculture sectors, University of California Cooperative Extension, Kern County has continued research and extension activities with safety guidelines in place

Our team has been busier than ever supporting over 15 projects while keeping all safety measures in place. Several spring projects such as the potato variety trial, carrot variety trial, potato southern blight fungicide trial, Melon nematicide screening trial were harvested for data collection and several other studies such as the carrot herbicide trial, carrot, and tomato nematicide screening trials, garlic fusarium trial, studies are on-going. In addition to that, we have also continued the diagnostic services for growers and stakeholders in Kern County. Unfortunately, we had to forego the traditional field days and local meetings this year but we are still committed to sharing our research and reaching out to our stakeholders. Here is some brief information about the trials this year and I will be sharing the research findings in the upcoming months.

1. Potato Variety trial: The potato variety trial is conducted every year on a grower's field and this year the trial was harvested in June. Usually, the trial is followed by a field day that showcases the tubers of potential new varieties, how they performed this year, and how they performed compared to standard varieties. For a full report and details on the trial, please click on the link below.
https://ucanr.edu/sites/Kern22/files/330232.pdf

2. Potato southern blight fungicide trial: Southern blight caused by *Sclerotium rolfsii* (recently renamed as *Athelia rolfsii*), has been causing increasing problems for vegetables, including potatoes. There are no California registrations for potato fungicides which include control of southern blight on the label. Some California potato fungicides such as azoxystrobin or others

may provide some benefit, but do not seem to be highly effective. Information is lacking about the efficacy of these fungicides for control of southern blight under California conditions. This project evaluates fungicides for efficacy in southern blight control in a field trial and to optimize the timing of fungicide application.

3. Garlic Fusarium fungicide screening trial:
   Clove rot caused by *Fusarium proliferatum* is an emerging post-harvest disease on garlic. The occurrence of clove rot during drying, conditioning, and storage can result in losses of up to 30% in harvested bulbs. The bulbs may show no visible disease symptoms in the field but rot can progress on harvested bulbs in storage. Management of garlic clove rot is challenging due to lack of garlic varieties with resistance to clove rot and limited information on the efficacy and timing of chemical treatments. The purpose of this field trial is to screen fungicide for their efficacy against *F. proliferatum* in garlic and to optimize the fungicide application timings.

4. Nematicide screening trial; Carrots, tomatoes, and melons
   Root knot nematodes (RKN), *Meloidogyn*e spp. are the most important plant-parasitic nematodes affecting several crops such as melons, carrots, and tomatoes in California. In the past, RKN management has mainly relied on the use of pre-plant soil fumigants and soil-applied nematicides. Management with these products is expensive and involves safety and environmental risks.

Alternative control options that have high efficacy, are economically viable and environmentally safe are evaluated under field situations. It is imperative to have alternative chemistries available to avoid the development of nematicide resistance. An over-reliance on any one particular nematicide product would likely lead to a loss of that product. In 2020 we are evaluating various products such as Nimitz, Salibro, and Velum for conventional agriculture and several products for organic production systems.

5. Carrot variety trial: The Kern County carrot variety trial is conducted every year at a grower's field in Kern County. Common standard carrot varieties used by the California carrot industry are grown alongside the newly released carrot varieties and potential new carrot varieties for release. For a full report please click on the link below. https://ucanr.edu/sites/Kern22/files/330849.pdf

6. Biological fungicide screening in cavity spot in carrots: We continue to maintain the cavity spot nursery at the Shafter Research Farm to screen for cavity spot resistance and fungicides. We are screening biological products like AGN, DN, and Serenade in 2020 to help address the needs in organic production of carrots.

7. Herbicide screening in carrots: Weeds are a persistent problem for carrot production. Carrots are sensitive to weeds and are poor competitors. Herbicides are essential for carrot production as high-density planting limits the use of mechanical options. Therefore, carrot growers have long relied on herbicides like trifluralin and linuron.

New regulatory restrictions along with loss of crop tolerances and costly environmental monitoring studies may lead to the loss of some really good herbicides. Weed control in carrots will require control options if some of these herbicides are phased out. We are evaluating ten pre-emergence and post-emergence herbicides in this trial for safety and weed control in carrots.

8. Stop-the-rot: Combating onion bacterial diseases with pathogenic tools and enhances management strategies
This is a USDA project to research onion bacterial bulb diseases in collaboration with 3 researchers from California and a larger group of researchers from 11 other states. This past onion season, we surveyed some commercial onion fields for diseased samples, and this coming season, we'll establish field trials to evaluate management methods. I will be looking for affected onion fields again in the spring/early summer of 2021.

Diagnostic highlights: Some of the issues that I encountered frequently this year included *Phytophthora* in watermelons, Southern blight in several crops, *Fusarium* spp. in several crops, bacterial rots in onions, soft rot and Scab in potatoes, etc.

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