

Buried drip system may help keep fig-orchard floors dry

By Richard Hall
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Buried drip irrigation is a technique that is being tried with grapes, vegetables, cotton and nuts. In the next year or so, researchers may include figs.

David Goldhamer, an irrigation specialist at the University of California's Kearney Agricultural Center and UC Davis, suggested the idea to growers at a recent "fig day" program held at the center.

He has worked with buried drip in a pistachio orchard to keep the soil surface dry. The technique also might be beneficial in a fig orchard, he said.

With the nuts, applied water that remained on the orchard floor because of poor infiltration created humidity that caused shell staining. The staining reduced the quality of the pistachios.

In his first-year study of figs, Goldhamer said, he found the amount of culls in the Black Mission variety increased in relationship to the amount of water applied through an above-ground drip system. The amount of culls more than doubled to about 850 pounds an acre at the highest irrigation levels.

Figs are harvested from the orchard floor after they mature and fall from the trees. Black Missions usually are irrigated into September, close to harvest, so the fruit may land on wet soil. That often leads to disease and blemishes and unmarketable fruit.

If drip lines are buried deeply enough, little if any water will come the surface, Goldhamer said. It appears from the study that Black Missions produced more as more water was applied up to 29 inches. Yields increased from 4,300 pounds an acre with about 12 inches of water to about 6,300 pounds with 29 inches. No increased yields were shown when more than 29 inches was applied in the summer.

The primary purpose of his fig study is to determine how much water a grower should apply in the summer to achieve the optimum return on his investment. New growers to the industry face new growing conditions because as Fresno County's expanding urbanization has eliminated orchards, the fig industry has moved north.

Madera County has become the top fig producer and more growers have begun planting 100 trees or more to the acre, rather than the traditional 48 trees.

Goldhamer's study, which is financed by the Fig Institute, includes both Calimyrnas and Black Missions. He said that he found surprising differences between the two varieties.

Unlike the Black Missions, the least amount of water applied to the Calimyrnas produced the largest yields. Goldhamer said that "as an irrigation specialist, I would not want to tell a grower at this point, 'No, you don't want the figs to be stressed.' That stress may be very beneficial for the Calimyrnas. On the other hand, it may not be very beneficial for the Missions."

His work this year will involve applying amounts of water similar to those used last year and comparing the results.

He told the growers that his first year's data indicated trends and not conclusions.

With the Missions, "the trend is toward higher 'extra fancy' fruit with more applied water," he said. "There is a very solid relationship between applied water and the 'extra choice' percentage. There was relatively no difference in the 'choice' category. We tended to get more 'standard' size (smaller-size fruit) with lower irrigation levels on Missions."

With the Calimyrnas, Goldhamer said, "We found that there was a trend toward less total production and lower marketable yield with an increase in summer-applied water."

Seven different irrigation treatments on Calimyrnas ranged from 3.7-14.7 inches. Corresponding yields decreased from 2,750 pounds an acre to 2,300 pounds.

Unlike the Black Missions, culls in the Calimyrna crop did not increase with the larger amounts of water. The Calimyrnas usually are harvested about a month after the irrigations are stopped in July because otherwise the fruit sours on the tree, Goldhamer said. So, when the mature Calimyrna fruit falls from the tree it usually lands on drier soil than the Missions.

"Based on the fact that there is a problem in Missions related to wet soil, and the fact that it appears that higher irrigation levels in the Missions are beneficial, it may be that this buried drip is one thing we may want to look at in the future," Goldhamer said.