

# Farm flooding could address overdraft

*UC Davis researchers study ways to apply extra water to crops in winter*

**Seth Nidever, Hanford Sentinel, 9-10-15**

If Mother Nature dumps rain and snow on the Sierra this winter — and that’s a big if — Kings County farmers could flood their crops to recharge overdrafted aquifers, according to feedback from a study being conducted by University of California, Davis, researchers.

The researchers say they’re encouraged by early test results on an alfalfa field in Siskiyou County and a grapevine field in Fresno County.

The idea is to find out if piling on the extra water — more than what the plants need — can be done in such a way that (A) it safely recharges aquifers and (B) doesn’t harm the crop.

Earlier this year in the spring, they flooded the alfalfa with more than twice the irrigation water it normally gets in a year. The result? The field produced more weeds, but the alfalfa plants seemed to suffer no ill effects.

Ditto with the grape vines.

The wine grape fields were under water for five months, prompting some observers to predict that the grapes would die. That didn’t turn out to be the case.

“They did fine,” said Don Cameron, manager of Terranova Ranch along the Kings River in Fresno County. “Diverting floodwater to farms can recharge groundwater and reduce the risk of downstream flooding. It’s a good situation all around.”

The need for recharge is critical: Groundwater levels are dropping dangerously due to massive pumping amid drought. Rural residents’ wells are going dry, and pumping costs are climbing.

Since Kings has few wine grapes, the likeliest area of success for the technique locally would probably be the 43,029 acres of alfalfa planted in 2014.

The alfalfa has the added benefit of not needing nitrogen-based fertilizers. Nitrogen from agricultural fertilizer applications has percolated into aquifers and caused water contamination issues in some low-income Valley communities.

Hanford dairy operator and farmer Dino Giacomazzi said alfalfa fields go dormant in the winter, so they could probably be flooded without killing the plants.

Kings’ geology and soil characteristics, however, limit growers’ ability to use the technique effectively countywide, according to local water experts.

“I do think there is potential for [the practice] to be feasible in our area, although I do think the geology in our area may limit where we can do that kind of thing,” said Dennis Mills, general manager of Kings County Water District.

Kings County Supervisor Joe Neves said that many areas of Kings are unsuited to groundwater recharge because of clay layers in the soil that prevent water percolating downward.

“Not every area is a good recharge area,” Neves said.

Local grower Craig Pedersen, also an elected Kings County supervisor, said there’s talk not only of flooding planted fields, but also of deliberately leaving ground fallow and flooding that with extra water.

He said the state might be able to fund a program through last year’s water bond that would pay farmers “rent” to leave some of their land fallow so that it can be flooded with extra water this winter.

“We have this possible gorilla [El Niño] winter coming at us,” Pedersen said, referring to some media reports that a strong El Niño in the Pacific Ocean could mean a repeat of the record-breaking 1997-98 precipitation year.

He noted that a lot of ground is already fallow because of drought.

“With the open land we have, I think that we could sink a large amount of water,” Pedersen said. “Land is so dry right now, it’s going to consume a lot.”

All the groundwater recharge ideas, of course, assume a wet year — by no means a guarantee in the historically hot, dry pattern that has gripped California for four years running.

“On-farm flooding looks very promising,” said Helen Dahlke, a UC Davis hydrologist.