Colusa Basin Watershed of California

FARM #24

Daniel Unruh farms a 193-acre walnut orchard in Princeton, California. The walnuts were planted in 2010 and, since 2013, Daniel has been practicing holistic management to bring nature onto his farm.

"I'm using cover crops, integrated pest management as natural predators, beneficial insects, and reducing the amount of chemical and mechanical disturbance," Daniel said. "I'm trying to work along with nature instead of against nature." He has also not tilled any of his land since the summer of 2012, when he established his orchard floor.

Daniel decided to implement cover crops when he realized that traditional chemistry was not fixing his nematode problem. With a parasitic nematode count of over 5,000, he knew he needed to do something. "We had tried a myriad of different things with no success," he explained. After hearing stories about cover crops helping vegetable farms in the Pacific Northwest manage their nematode problems, he decided to try it in his orchard. "That was basically the beginning of my quest for knowledge for holistic management and production ag systems," he said.

"I noticed a 97 percent decrease in nematode population after three years of the white, yellow and nemagon mustard and daikon radish mix," he said. "The nematode population has continued to decrease, and finally, we've begun to see new growth in trees affected by the nematodes."

Daniel plants a diverse cover crop mixture and says that the best mix includes a minimum of three grasses, three forbs and three legumes. He notes that the grasses and legumes work synergistically together, helping raise his carbon to nitrogen ratio.

The benefits of his soil health practices are numerous and stretch far beyond the reduction in parasitic soil nematodes. His soil porosity has improved, leading to better water infiltration. He also sees less disease and insect pressure, creating less input costs, and has had virtually no erosion problems since he stopped tilling. The organic matter in his soils has jumped from about 1.7-1.9 percent in 2012 to 3-3.5 percent in 2018.

To Daniel, the costs associated with his practices are well worth the benefits he sees. "If you take nature, in the way it was created to be, you can produce more nutrient-dense foods with lower input costs than what you can with the nominal, conventional model," he said.

View Daniel's interview:
https://www.youtube.com/watch?v=86M51O6nCFg

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