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Profile in Conservation: Fritz Durst—Keeping the Farm Alive Through Innovation and Crop Diversity

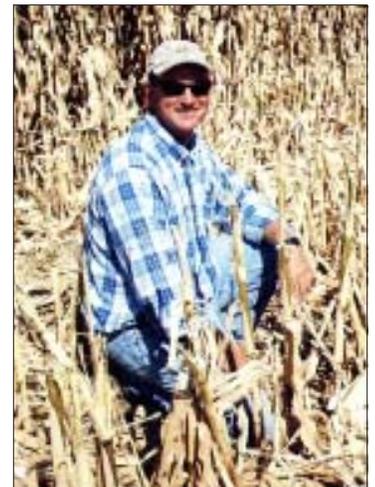
by Diane Crumley

A willingness to field-test innovative, sustainable practices comes naturally to Fritz Durst, fifth generation Yolo County farmer and rancher; diversifying his operations is one strategy for combating the inherent risk associated with agriculture. On a recent September afternoon, I rode along with Fritz and had a chance to see some of the challenges and solutions firsthand in the context of his diverse operation. We started on the steep, rugged eastern face of the Capay Hills where Fritz grazes cattle that are later sold to a grass-fed beef cooperative. The next stop is down through the uplands where Durst has planted grapes, and has used no-till production techniques for over 20 years growing grains, oilseeds, and legumes. To the south, we pass minimum-till organic fields for raising seed crops, asparagus, grains and alfalfa hay produced for organic dairy-feed. Next we head east, through the dry, rolling Dunnigan Hills where he has many acres of highly erodible land currently out of production, and enrolled in the Conservation Reserve Program. This land was formerly used for cattle grazing and dryland grain pro-

duction. We end the tour in the flat, floodplains of rice fields near the Sacramento River and Colusa County line, where rice is nearing harvest, and great blue heron and American white pelicans fly overhead.

CALIFORNIA CONSERVATION TILLAGE PIONEER

Fritz has always enjoyed the challenges of agriculture and began accompanying his father around the ranchland and fields by age five. Not long after graduating from UC Davis with a degree in agricultural economics, Fritz and his father turned their attention toward the problem of persistent soil erosion occurring on the uplands of the Capay Hills and the foothills near Dunnigan. They investigated no-till techniques for their small grain crops that involved planting directly into the residue of the previous crop. No-till and other conservation tillage methods had long been used in the Midwest to combat severe wind erosion, but in California it was still considered a new and untested technique.



Fritz Durst in no-till field after corn harvest.

As with any farm practice there are benefits and drawbacks. The most immediate benefit Fritz realized was a significant reduction in soil erosion. In 1985, after one

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year of no-till wheat production Durst reported a reduction in annual soil loss from six tons/acre using conventional tillage to two tons/acre in his no-till fields. Additionally, the large six foot deep gullies that appeared after winter storms were not seen the year following the change to no-till. During the next few years, Fritz reported on his experiences at several no-till workshops, and received the RCD "Cooperator of the Year Award" in 1986 for being a pioneer of no-till cultivation in Yolo County.

Currently, there is renewed interest in conservation tillage because of its potential to sequester carbon in the soil, thereby reducing greenhouse gasses. Additional benefits to air quality come from reducing tractor time and associated diesel expense and exhaust, and from producing less airborne dust, which is regulated in some agricultural areas.

No-till also tends to improve soil moisture retention, a factor particularly important to dryland farmers. Crop residues left on the soil surface increase the ability for water to infiltrate and reduce evaporation, conserving water for plant growth. No-till soil quality is also im-



Prescribed grazing with electric fence trained cattle and minimal fencing.

proved through the increase in organic matter, and the lack of disruption of soil microbes and arthropods.

For farmers converting fields to no-till, there can be the added cost of equipment rental for special planters utilizing the 20-ton drills needed for placing the seeds and fertilizer through the previous crop's residue. Fritz was able to offset the initial equipment cost through a cost-share program with the NRCS. Another challenge is the management of weeds that can grow amongst the stubble. Fritz sees this as a short-term cost that will be offset in the long-term by increased yields due to improved soil quality.

GROWING GRASSES AND GRAZERS

Fritz explained another change in practice that has led to a more efficient use of resources on his rangeland. After observing the timing of the growth of annual and perennial grasses on his ranchland, Fritz shifted from a fall-calving schedule to calving in January, so that by mid-February, when hungry calves are first starting to be weaned, there is a maximum amount of tender forage available. By switching to spring calving, it matched the timing of the animals' greatest energy demand with the rangeland's largest supply, thus reducing the cost for hay supplementation. Durst has presented workshops on grazing management using temporary electric fencing, and describes how effective this technique can be, since cattle can be trained very quickly to avoid this type of fencing, allowing for potential reductions in the costs involved in the installation and maintenance of more substantial posts with multiple wires for all pasture areas. Fritz has also observed that by grazing the foothill grasslands briefly in May after the native perennials have produced seed, the cattles' hoof action appeared to improve the yield of perennial grasses later in the year following the rains. By timing grazing to mimic native herbivore grazing as much as possible, weeds can be reduced and native plants encouraged, slowly shifting the rangeland ecosystem closer to its original composition.

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Tamarisk-Eating Leaf Beetles Aiding Weed Management

YCRCD efforts to manage invasive weeds along Cache Creek in Capay Valley are now receiving some assistance from a biocontrol species, the tamarisk leaf beetle (*Diorhabda elongata*). Beetles have been released upstream of Rumsey as part of a study conducted by the USDA Agricultural Research Service and UCD's Department of Entomology.

Human efforts to control tamarisk remain outpaced by the weed's rapid spread. In the 1980's, the USDA Agriculture Research Service (ARS) initiated a search and study for an effective natural enemy of the plant that would not impact any crop or native plants. Researchers succeeded in locating tamarisk-feeding specialist beetles that appeared to defoliate tamarisk in China, Kazakhstan, Greece and Crete, and conducted ten years of safety tests before initiating controlled/caged releases in the western U.S.

Already, thousands of acres of tamarisk are being successfully defoliated by the beetle in Nevada and Wyoming, but it has taken longer for the beetles to establish in California, partly because of the differences in day-length sensitivity by the beetles from more northern latitudes. Tamarisk leaf beetles imported from Greece and Crete appear to be better matched to the conditions and particular tamarisk species in California.

Despite a wet year in 2006 and a very dry, cold winter in 2007, the Cache Creek population of leaf

beetles released about four years ago has expanded from Rumsey to Camp Haswell in the north, and to the Guinda Bridge in the south. The affected tamarisk stands appear completely defoliated and brown in color. According to YCRCD "weed warrior" Tanya Meyer, that is all due to the feeding of the adult and larval tamarisk beetle. The process takes about five years to completely kill a stand, and beetles may produce two to three generations during a season. In the winter, the beetles won't be visible because they seek shelter in leaf litter.

Keep your eye out for this helpful yellow and black beetle in the Cache Creek area next spring and summer, as they will again be busy in their biocontrol activities.



Leaf Beetle adult and larvae feeding on tamarisk.

Photos by Joe DiTomaso

New Grant for Erosion Control & Environmental Education in Capay Valley

YCRCD successfully applied for funding to support a large-scale geomorphic and hydrological study of causes of and appropriate solutions for stream bank instability in Capay Valley. The grant from the CALFED Watershed Program will be funded for \$389,000 to conduct two years of work starting in January 2008.

Kamman Hydrology & Engineering (KHE) will collect historic and current data on creek function to produce models that predict the locations and future rates of erosion. This will aid in the selection of optimal places along the creek to focus (or avoid) efforts in bank stabilization and restoration projects. KHE will also develop restoration



Capay Valley orchard with bank erosion on Cache Creek.

designs through collaboration with the local stakeholders group, a watershed assessment team, the Cache Creek Watershed Forum and other Yolo County partners.

We will extend the expertise and information obtained through the study to develop a watershed science education program for Esparto Middle School students. The 'STREAM' (Student Training in Reporting for Environmental & Agricultural-Science Media) program will begin in fall 2008 and will supplement 6th graders' ongoing studies of earth and life sciences.

The Center for Land-Based Learning will offer logistical support during student field visit days along Cache Creek. During field visits, students will learn photo monitoring and measures of watershed condition. Students will also be trained to use digital A.V. equipment from Davis Media Access, a community media organization, to produce their own documentaries, podcasts and websites for presentation to the community each May, as part of Watershed Awareness Month activities. By providing students with techniques to investigate, document and communicate findings about the health of their watershed, we hope that students will have an increased awareness and long-term interest in resource stewardship within the local community.

News & Announcements

WE'RE LOOKING FOR A FEW GOOD PONDS . . .

YCRCD is currently seeking landowners interested in developing a new pond or modifying an existing pond to host the native Sacramento perch. Funding from the CALFED Ecosystem Restoration Program will cover most of the costs of pond construction/modification and vegetation, with the remainder of the cost to be covered by the landowner, or other cost-share mechanisms such as the NRCS EQIP or WHIP programs. YCRCD, NRCS and Audubon Landowner Stewardship Program staff will provide assistance in pond design, acquiring permits, and installation. Researchers at UC Davis, led by wildlife and fish biology Professor Peter Moyle, will provide the fish stock and annually monitor their success in establishment and growth.

The Sacramento perch is a native sunfish that was once abundant throughout the Sacramento-San Joaquin watershed. It grows and reproduces rapidly under good conditions. Although it is considered an "at-risk" species, it is not regulated as threatened or endangered.



Sacramento Perch.

One of the goals of the Yolo-Solano Conservation Partnership project is to evaluate how farm ponds and other agricultural waterways can assist in recovering the Sacramento perch to its native range. So far, it is thought that an ideal pond has deep spots of around 10 feet in depth for cool water refuge, and shallow-sloped banks with emergent vegetation for spawning. This project will document how well perch perform under a variety of conditions, so even less-than-ideally-sized ponds could be eligible. Pond sites can be located in Yolo or Solano County.

Sacramento perch provide good mosquito control, are a good sport fish and have a high tolerance for a wide variety of water quality conditions. Because the perch is unregulated, there is no associated liability for the landowner. If you are interested in having a new pond installed on your property or hosting Sacramento perch in an existing pond, please contact Jeanette Wrynski at YCRCD at 662-2037, ext. 118.

SIGN UP FOR EQIP UNDERWAY

The Environmental Quality Incentives Program (EQIP) is a broad-ranging program that offers farmers and ranchers cost-share and technical assistance for projects that contribute to improvements in soil, water, and air quality and rangeland and wildlife habitat. According to NRCS State Conservationist Ed Burton, "EQIP has been a huge help for California's agricultural producers who are trying to balance their desire to do the right thing for the environment with the reality of fiscal constraints". Approximately 1,200 California EQIP contracts were approved in 2007, for a total of \$48 million on 447,000 acres.

Applications are being accepted now through November 2, 2007. They are ranked according to scores that reflect the relative environmental benefit to national, statewide and locally identified priorities, as well as a cost efficiency calculation. In 2008, California priorities include air quality, wildlife habitat, and water quality needs related to confined animal feeding operations. Conservationist Ed Burton also stresses the importance of having a conservation plan (which NRCS staff can assist with) that helps growers assess the needs of the resources on their lands and develop a timetable to help schedule the implementation of conservation practices.

For more information about local goals and the ranking process go to www.ca.nrcs.gov/ programs or stop by the Woodland Field Office at 221 W. Court Street, Suite 1 in Woodland.



Tailwater pond with vegetation.



Fritz Durst, continued from page 2

ENCOURAGING STEWARDSHIP

Over the past 25 years of farming and ranching in Yolo County, Fritz helped pioneer locally-specialized techniques for no-till production, served as co-chairman of the RCD board of directors for five years with Tom Muller from 1992-1997, and currently serves as president for Reclamation District 108. When asked what some of his goals were for the next 10 years, Fritz answered that he hoped farming in this global economy could remain profitable and feasible for his family and his fellow growers in Yolo County, and that he'd like to continue to work toward the development of a wildlife corridor that spans from the Coast Range to the Sacramento River floodplain. YCRCD is grateful to growers like Fritz for the vision and drive to not only envision such goals but to test out the innovations that make them happen.



No-till field after harvest with wheat stubble remaining.

On-Farm Conservation Field Meeting Series Calendar for 2007-2008

YCRCD and partner organizations are hosting another series of free on-farm workshops from October 2007 through April 2008. This year's series includes the following:

October 27 & November 10 ----- Farm Conservation Planning

Saturdays, 9 am - 12 noon, FREE, at the UCD campus, limited enrollment

Participating landowners will pair with an RCD or NRCS conservation planner and a UCD Landscape Architecture student. Each team will inventory farm resources during the first session then develop a site-specific farm conservation plan in the second. Products: a color, aerial rendering of the property and future projects with an implementation plan for practices, cost estimates, prioritization and options for funding.

November 2 ----- Watershed-friendly Equine Management Practices

Saturday, 9 am - 12 noon, FREE, at Pleasant Trails Road in Solano County

Training and demonstrations on methods and equipment used for conservation-minded horse facility management for landowners on small parcels. Led by Solano RCD.

November 8 ----- Conservation Project Maintenance

Thursday, 2-4 pm, FREE, at The Farm on Putah Creek Road, 5365 Putah Creek Rd., Winters

Training and demonstrations on methods and equipment used for enhancing native plantings and controlling non-natives. Led by the Audubon Landowner Stewardship Program.

January ----- Enhancing On-Farm Habitat for Pollinators

February ----- Tailwater Management with Vegetation & Sediment Traps

April ----- Riparian Weed Control & Revegetation Projects

The Solano RCD, USDA NRCS, the Cache Creek Conservancy, the Xerces Society, and the Audubon Landowner Stewardship Program will co-lead the meetings. For more information call Sheila Pratt at the YCRCD at 530-662-2937, ext. 117.



Yolo County RCD Publications

The Yolo County RCD offers various resource materials for sale. To place an order, send your request to Yolo County RCD - Orders, 221 W. Court Street, Suite 1, Woodland, CA 95695; call 530-662-2037, ext. 117; or send an e-mail to pratt@yolorcd.org.

Please add tax and shipping and handling costs to publication prices below:

- Know Your Natives; A Pictorial Guide to CA
Native Grasses (includes supplement)\$30
- Know Your Natives - supplement ONLY \$15
- Bring Farm Edges Back to Life! \$15
- California Native Grass (poster) \$17
- Monitoring on Your Farm \$15
- Working Habitat for Working Farms (video) . \$10
- Yolo County Soil Survey (CD-ROM) \$13.92
- Capay Valley Conservation & Restoration
Manual (free to Capay Valley residents) \$15



Shipping & handling:

- 1 item: \$6.00
- 2-5 items: \$9.00
- 6-10 items: \$12.00
- 11-30 items: \$16.00
- Poster: \$7.50

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Find project progress reports, events, links, and updated conservation articles on the RCD website at www.yolorcd.org

If you would like to receive this newsletter electronically instead of by mail, please notify Sheila Pratt at pratt@yolorcd.org.

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