

Simply Sustainable

People and projects sustaining Western agriculture



Profitable farms



Clean environment

Sound communities



Simply Sustainable

What's inside:

- 1.....Focus on the producer
- 2.....SARE grant tutorial
- 3.....By the numbers
- 4 & 5.....In touch with consumers
- 6.....The road to organic
- 7.....One man's trash
- 8.....Plants that battle pests
- 9.....Light-touch tillage
- 10 & 11.....Four-legged pest control
- 12.....Cultivating farmers
- 13.....Going under cover
- 14.....Righting the range
- 15.....Consider the alternatives
- 16.....Plant a tree
- 17.....Engines of ingenuity
- 18.....Cool, clear water
- 19.....The whole farm
- 20 & 21.....The people behind the scenes

On Lopez Island northwest of Seattle, Henning Sehmsdorf grows 2 acres of organic barley to feed chickens, pigs and a single Jersey milk cow. Sehmsdorf's barley-on-a-small scale forges yet another link in the circle of sustainability on his 50-acre farm. The barley feeds his animals. Their manure feeds the soil. The soil produces the vegetables. The vegetables feed the community.



Near Corvallis, Ore., on Stahlbush Island Farms, Rob Heater strip tills nearly all of the farm's 2,500 acres of berries, fruits and vegetables. Tilling in ribbons—instead of wide swaths—disturbs two-thirds less soil, leaving intact a frenzy of soil-enriching biological activity and reducing the potential for runoff and erosion.



South and across the Rockies, in Monte Vista, Colo., Wiley and Travis Keller help their mom, Carolyn, and dad, Steve, milk 200 ewes. The Kellers sell the rich milk to cheese makers in Santa Fe, New Mexico, and Fort Collins, Colorado. Milking sheep means extra work for Wiley and Travis, but also extra income as the Kellers extract values far beyond lamb and wool.



The barley field, the strip tillage, the sheep dairy—all ideas transformed into reality with grants from the Western Sustainable Agriculture Research and Education program. Western SARE is an initiative of USDA that provides competitive grants to producers, researchers and ag-support professionals, grants that cultivate economic, environmental and community sustainability.

Sustainable agriculture. The phrase is esoteric, its definitions varied. Sustainable agriculture fits into and complements modern agriculture. It recognizes the true values of farmers and their products. It embraces and learns from organic farming yet can mean much more. It works on farms and ranches large and small. It harnesses new technologies. It blurs the lines between environmental concern and agricultural productivity. It renews the best practices of the past and applies them to the future.

The clarity of sustainability comes with seeing—seeing the face of the land nurtured with sustainability and the faces of the people who embrace it—the Sehmsdorfs, the Heaters, the Kellers. Their tales are repeated a hundred times over under big skies on diverse Western landscapes. Sustainable farmers and ranchers are renewing, recycling and renovating. They're inventing, creating and building—all with the goal of staying on the land, making a profit, protecting their environment and strengthening the communities in which they live.

Focus on the producer

Welcome to the world of sustainable agriculture in the West. My name is Phil Rasmussen. I'm a soil scientist at Utah State University and coordinator of the Western Sustainable Agriculture Research and Education program, also known as Western SARE.

I work with the Western SARE staff and a 14-member Administrative Council to fund projects that support sustainable farms, environments and communities. Since our program began in 1988, we've used a competitive process to fund more than 700 projects for more than \$24 million. These projects seek solutions to challenges facing virtually every farm and ranch in the West—keeping water clean and soil productive, improving marketing and testing new crops, managing pests and recycling farm waste... the list goes on.

Western SARE is built on a foundation of respect for agricultural producers—the idea that farmers and ranchers know best what does and does not work on their land. We like to boast that Western SARE “is not business as usual.” Farmers and ranchers initiate many of our projects and are involved in nearly all of them. Our Administrative Council—comprising producers and people representing universities, agribusiness, government agencies and nonprofit organizations—guides our activities and plays an integral role in funding decisions.

With council guidance, we've streamlined a grant program to include pre-proposals, saving time and energy for staff and applicants. We've shortened our funding cycle to place grant dollars in the hands of producers when their season begins. We're using technology and innovations to handle increasing grant volume with the same staff, keeping administrative costs under 2%. And we've cut the paperwork required for grant applications to five pieces from 25 and still met federal requirements.

Our projects reach deep into Western agriculture, ranging from conventional to organic to alternative production. On the pages that follow, we share the creative and ingenious work of farmers, ranchers and their professional and nonprofit supporters who have applied Western SARE dollars to sustainable solutions. We hope their stories will pique your interest, invoke your support and stimulate your questions. Thank you for taking the time to see why we're optimistic about a better, more productive, more profitable and, yes, more sustainable outlook for present and future generations.

V. Phillip Rasmussen, Ph.D., Coordinator, Western SARE, Cooperative State Research, Education and Extension Service



SARE grant tutorial

Western SARE grants are used to increase knowledge about sustainable practices and to help farmers and ranchers adopt those practices. Since 1988, Western SARE has funded more than 700 projects including:

- **Farmer/Rancher Grants (FRG)** – Ag producers apply for these grants—ranging from \$1,000 to \$15,000—to conduct on-site experiments that can be shared with other producers. Subcategories include marketing, organic and professional + producer.
- **Research and Education Grants (R&E)** – Ranging in size from \$20,000 to \$200,000 or more, these grants fund projects that usually involve scientists, producers and others in an interdisciplinary approach.
- **Professional Development Program Grants (PDP)** – To spread knowledge to producers about sustainable concepts and practices, these projects educate Cooperative Extension, NRCS and other agricultural professionals.

A call for proposals, issued in the spring, announces the grant opportunities. After the submission deadline in the fall, committees of farmers, ranchers, scientists and others rank the proposals and the Western SARE Administrative Council decides which will be funded.

To receive a call for proposals in any of the three grant categories, check deadlines or learn more about sustainable agriculture visit the Western SARE Web site at <http://wsare.usu.edu> or call the Western SARE office at Utah State University, (435) 797-2257.

Note: As you read through this report, you'll see our project codes. Codes with the letters FW are Farmer/Rancher Grants; SW, Research and Education Grants; and EW, Professional Development Program Grants. Use these codes when seeking more information on a grant through our office or our Web site.

SARE's Sustainable Agriculture Network, or SAN, offers a raft of helpful tools and information. Visit the SAN Web site at www.sare.org and you will find:

- Publications on topics ranging from business plans to farmers markets, from building soils to managing cover crops and more.
- Online information bulletins that cover limited resource producers, pastured poultry, profitable pork, pest management, marketing, on-farm research and crop diversification.
- Educational tip sheets.
- A calendar of events.
- Gateways to Web sites of SARE's four regions.
- Sign-up for the Sustainable Ag Network discussion group.

Andy Clark, SAN coordinator, can answer your questions at (301) 504-6425 or san@sare.org.



Livestock nutritionist Woody Lane, right, consults with Andy and Mary Rae Thompson about the alternative plantain crop the Thompson's are testing on their western Oregon cattle operation as part of the Willamette Valley Grazing and Nutrition Group (FW99-071).



Warren Weber of Point Reyes, California, is using a Western SARE Farmer/Rancher Marketing Grant to promote the value of locally grown produce to help members of an organic cooperative compete with the large companies that are entering the organic arena (FW03-107).

By the numbers

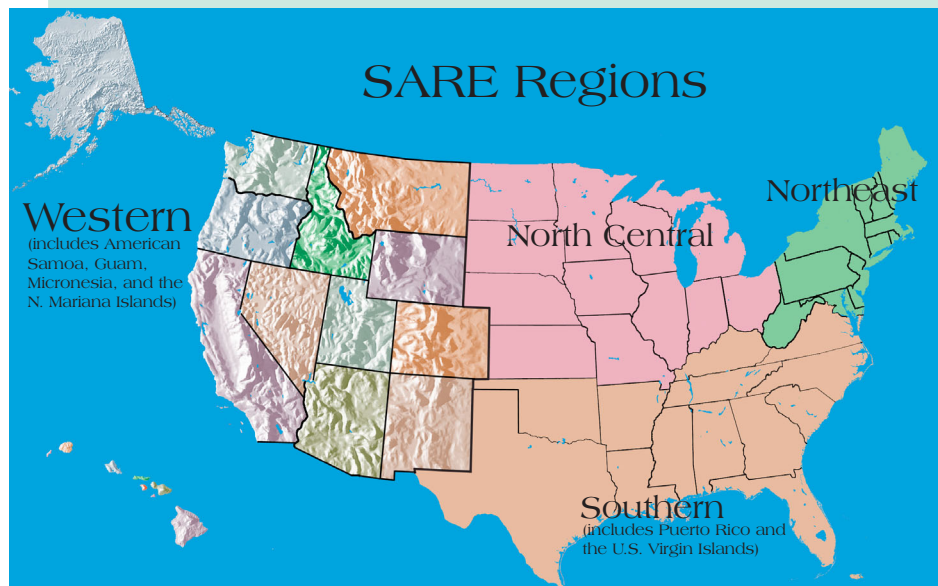
State and territory Western SARE grants funded from 1988 through 2003

State or Territory	Dollars Funded	Number of grants				
		R&E	PDP	PDP*	FRG	Total
<i>Alaska</i>	\$287,896	3	-	9	8	19
<i>American Samoa</i>	\$288,962	1	1	9	23	34
<i>Arizona</i>	\$1.40 million	10	2	9	12	33
<i>California</i>	\$6.45 million	39	13	9	30	91
<i>Colorado</i>	\$1.48 million	6	11	9	31	57
<i>Micronesia</i>	\$253,076	2	1	9	2	14
<i>Guam</i>	\$538,893	5	2	8	7	22
<i>Hawaii</i>	\$1.97 million	12	7	9	19	47
<i>Idaho</i>	\$2.23 million	15	4	9	18	46
<i>N. Mariana Islands</i>	\$218,118	1	-	8	6	15
<i>Montana</i>	\$2.51 million	20	10	9	19	58
<i>New Mexico</i>	\$916,413	2	2	9	18	38
<i>Nevada</i>	\$366,334	3	2	9	1	15
<i>Oregon</i>	\$2.96 million	25	3	8	28	65
<i>Utah</i>	\$1.17 million	14	-	9	10	33
<i>Washington</i>	\$3.54 million	22	7	9	39	77
<i>Wyoming</i>	\$1.48 million	11	2	9	11	33

* Non-competitive grants managed by state or territory Professional Development Program coordinators

SARE Regions

Of SARE's four regions (Western, North Central, Northeast and Southern), the Western Region, with 13 states and four U.S. Trust Territories, is easily the most diverse in crops, climate, people and geography. Indeed, our geographic center lies somewhere in the Pacific Ocean between Hawaii and Alaska.



In touch with consumers

In five years of drought, **Duke Phillips** has watched forage wither on his 87,000-acre Chico Basin Ranch southeast of **Colorado Springs**. As his cow herd shrank, Phillips and his family invited hundreds of guests to share ranch amenities—from fishing to bird watching, from photographing wildlife to participating in ranch roundups.

In the Cache Valley of northern **Utah**, wheat farmers **Wes and Jean Roundy** hiked the marketing trail, taking a family recipe from idea to product. Their popped wheat snacks are now being packaged and labeled and finding space on local store shelves.

Like Phillips and the Roundys, more and more producers are carving out niches in the agricultural marketplace. Western SARE grants offer impetus and courage to step into what is often a new and complex world. Direct marketing can generate more dollars, offer greater pricing control and add diversity. It also requires willingness to deal with retailers and the public.

“We wanted to diversify and find more ways to create sustainability,” says Phillips (FW00-028), “but we’ve had to market ourselves and tell the public who we are.”

The Roundys (FW00-017) have learned to assess snack buyers and how to reach them. “It seemed overwhelming at first,” Wes Roundy says of his project, “but we found a lot of people willing to help.”



Duke Phillips, manager of Chico Basin Ranch near Colorado Springs, markets ranch amenities to the public.

In their struggle to market low-grade wools, a band of **Oregon** sheep growers embarked on a creative escapade to spin off a host of value-added products with catchy names, all made from the lesser quality wool (FW01-040).

Wooly Pooch Pads and Wooly Kitty Nappers—dog and cat beds filled with wool and cedar chips and covered with a cotton wrap—are selling in stores and being promoted on the radio, says project coordinator, **Margaret Magruder**. Hydro Shepherds, fabricated from wool to serve as sediment filters in storm drains, have been tested, and sparked interest, at the Port of Portland and the City of Albany.

Members are also testing Safe Sax, oversized socks that fit over soiled shoes or boots for dirt-free trips in and out of the house; stadium pillows filled with wool and adorned with university logos; and fire suppressant blankets made of wool for fire departments and emergency car kits.

“We’ve had virtually no market for the last five years for some of our wool,” says Magruder. “We’re hoping this will provide a steady outlet and encourage producers to separate their wool clip and market cleaner wool.”

Truly wooly



Margaret Magruder anticipates strong demand for “Hydro Shepherds,” storm-drain filter bags made from low-grade wool.

SARE grants spark creative marketing



Daphne and Ron McKeehan of Honokaa, Hawaii, opened an on-farm store to market their hogs.

In Honokaa, **Hawaii**, **Ron and Daphne McKeehan** market pork products directly to consumers (FW00-135). Their hogs are processed at a USDA packing facility, and standard and specialty cuts are sold from a store they built on their farm.

“Our customers appreciate that our hogs are homegrown and from a small family farm, and that we are operating under sustainable agriculture practices,” says Daphne McKeehan.

In Portland, **Oregon**, **The Food Alliance** helps producers capitalize on their sustainability. Its SARE grant engaged marketing techniques—point-of-sale materials, brochures, banners and flyers—to promote the sustainable approaches of its producer members and their products (SW00-024).

David Chaney at the University of California Davis is training ag-support professionals in **California, Hawaii, Idaho, Oregon** and **Colorado** in direct-marketing strategies (EW00-012). The idea is to increase the number of marketing consultants available to producers.

To help more producers take the marketing leap, the Western SARE Administrative Council is directing more dollars into marketing grants.

Safety net



Janie Burns says the organic marketing cooperative formed in 1996 with a SARE grant is providing the framework for alternative ventures.

When the tragic events of 9-11 crimped U.S. travel, the ripple effect of reduced tourism cut deep into the Idaho Organic Cooperative’s sales to high-end Boise, **Idaho**, restaurants. Cooperative members withstood the jolt because most were well diversified beyond restaurant sales, a diversity spurred by the cooperative, formed five years earlier (FW95-046).

Janie Burns, project coordinator, says the cooperative structure has facilitated construction of greenhouses to extend growing seasons. Some members are cooperating to save, grow out and market organic seeds. And several hope to develop a poultry-processing facility that uses organic feed produced through the cooperative.

“Our SARE grant provided a small amount of money,” says Burns, “but it has made a huge difference.”

The road to organic

Research and experience aid transition from conventional

Jess Alger had long pondered trying organic production on his 1,200-acre Montana cattle and cereal operation. His idea: plant black medic—a nitrogen-fixing legume that's forage for cattle and wildlife—in rotation with his flax, barley and winter and spring wheat (FW99-069). His conventional and organic test plots differed little in yield, but the organic plots were more economical because he spent less on fertilizer and pesticides. For Alger, the tests were an eye opener.

“My farm is almost totally organic on account of this grant,” he says. “It’s a little more labor intensive because of increased mechanical weed control. But I have better records, my bottom line is better and the chemical companies are missing my business.”

Like Alger, hundreds of farmers have made the switch in recent years. Organic food sales have grown by 20% or more a year since 1990. In 2003, the nation’s 13,000 or so organic farmers and ranchers, spurred by premium prices for organic food, were expected to generate sales close to \$13 billion, up from \$7.8 billion in 2000. The trend is clear, and Western SARE grants are aiding the transition.

In California, the state with the most organic acreage, **Steve Temple**, extension agronomist at UC Davis, has conducted a comparison of organic, low-input and conventional farming (SW99-008). Yields in the 12-year study, supported in part by SARE, were similar among systems. But organic farming was more profitable because of premium prices. And the soil organic carbon in the organic plots had doubled over 10 years.

In California’s Salinas Valley, **Louise Jackson**, extension vegetables specialist at UC Davis, is documenting the transition to organic methods on a large vegetable farm (SW01-057). She will describe and solve problems so producers considering the switch will be aware of the challenges.

The Sangre De Cristo Agricultural Producers, a grower group in Taos County, New Mexico, found a lucrative niche market producing organic wheat ground into flour for sale to bakers in the Taos and Santa Fe area. The growers, who plant their wheat on small acreages handed down from generations, tested several legumes to alternate with the wheat—fava beans, pinto beans and field peas (FW01-014).

Project coordinator **Theresa Young** says that even though the persistent drought hindered legume growth, positive results ensued: the lands have been rested from wheat production; growers are now familiar with legumes; the legumes served as an erosion-reducing cover crop; and the crops have served as livestock feed.

For more information on organic, go to www.sare.org/bulletin/organic.



Montana wheat and cattle producer Jess Alger has nearly completed the conversion of his 1,200 acres to organic production.



California vegetables specialist Louise Jackson is developing a model for producers considering the transition from conventional to organic production.

One man's trash . . .

Turning waste into compost the low-tech way



David Ostheller, Fairfield, Washington, applies low-tech methods to create high-volume compost.



In Sequim on Washington's Olympic Peninsula, Jack Caldicott has created a labor-saving compost turner.



Steve McCullough of Townsend, Montana, is composting cull potatoes with sawdust.



"The research and practices under the umbrella of sustainable agriculture assist farmers and ranchers in meeting the challenges in front of them and better link rural and urban communities."

Stacie Clary, executive director, California Sustainable Agriculture Working Group, Santa Cruz, California

Compost. There's something about its rich texture that invites you to scoop up a handful and sift it through your fingers. Composting can turn farm residues into stable organic materials that are safer to store and easier to transport, making them available at the optimum time for the land and its owner.

When Washington State slammed the door on burning residue from Kentucky bluegrass seed production, **David Ostheller**, an eastern Washington cereal and grass seed producer, decided to cook it into compost (FW02-038). He grinds the crop residue into windrows after harvest, then turns the windrows two or three times in the spring with his homemade turner—an auger attached to an aging combine—yielding “beautiful, earthlike compost.”

He minimizes transport by composting in nutrient-depleted fields. As he refines the process, Ostheller is gauging crop response and collaborating with local towns on joint composting projects.

In Sequim on Washington's Olympic Peninsula, backyard farmer **Jack Caldicott** sought to squeeze the labor out of small-scale composting with a rotating compost drum (FW00-022). Trial and error led him to a motor-driven plastic drum geared to rotate every 6 hours. The horse manure and garden residue compost in 10-14 labor-free days, reaching weed-seed-killing temperatures of 160 degrees. It takes only 2 hours to fill the drum and a half hour to empty it. And the process turns out better compost.

East of Townsend, Montana, seed potato grower **Steve McCullough** figured that composting his cull potatoes would stem their ability to grow, a requirement under state law. McCullough partnered with five seed growers and the county to create a recipe of cull spuds and sawdust (FW98-093), eliminating the need for fungicides, insecticides and sprout inhibitors.

“We used to haul the culls to cattle feeders or pile and spray them,” says McCullough, “but we don't use any other method (than composting) now.”

Richard Zink of Colorado State University is examining the effects on soil and water infiltration of using compost from cull spuds and sawdust. The project (SW00-018) seeks to reduce synthetic fertilizers, improve water use and raise crop yields.

In central Utah, egg producers, working with former USU soils specialist **Rich Koenig** (SW00-040), found that composting chicken manure in high-rise laying facilities reduced flies and the pesticides to control them and generated a product more marketable than fresh manure.

To spread the word on the growing body of compost knowledge, **Cinda Williams** and the University of Idaho coordinated a satellite broadcast on compost education that reached hundreds of producers and ag professionals in 13 Western states and two Canadian provinces (EW97-012).

Plants that battle pests

Alternative crop rotations supplant pesticide use

Strawberries and broccoli make an unappetizing combination, unless you're a **California** strawberry grower.

Strawberries for fresh and processing markets are harvested from nearly 24,000 acres in California, accounting for 80% of U.S. production and a farm gate value of more than \$600 million a year. Trouble is the fumigant long used to control soil-borne pathogens —methyl bromide—comes off the shelf in 2005, leaving producers with limited pest control options.

Krishna Subbarao, a plant pathologist at the University of California Davis, sought to remedy that by exploring how rotating strawberries with broccoli, cauliflower, Brussels sprouts and lettuce would impact strawberry yield and disease incidence (SW99-009). Broccoli stole the show. Even though growers sacrifice a year of strawberry production to broccoli, the system is profitable over the long run.

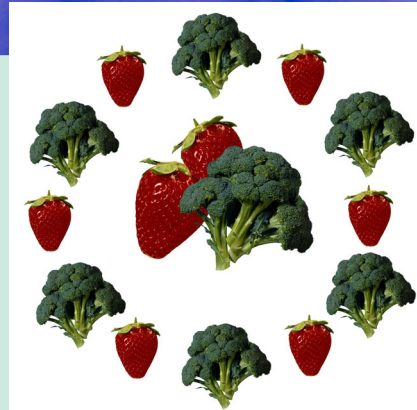
“Rotations with broccoli are likely to play a significant role in the post-methyl bromide era,” says Subbarao, adding that he’s talked to many strawberry growers contemplating broccoli rotations.

Wyoming sugar beet growers have found a nematode-fighting ally with certain varieties of radish and mustard inserted into rotations as trap crops, a benefit multiplied when grazing lambs are added to the mix (SW97-018). **David Koch**, UW extension agronomist, found that growing “trap crops” increased grower returns to 5.8% from 3.9% with nematicides. The returns rose to 9.5% when lambs grazed the mustard and radish. The trap crops reduce pesticide use, cut the cost of beet production and may improve profitability through a rotation effect, says Koch.

John McHugh of Crop Care Hawaii tested the trap crop method with **Hawaii** vine ripe tomatoes (SW97-001). He planted Sunn Hemp and yellow mustard cover crops to test their effects on reniform and root knot nematodes. The cover crops were at least as effective as soil fumigants and offered the added benefits of stemming wind and water erosion and restoring soil organic matter.

Also in **Hawaii**, UH agronomist **Susan Miyasaka** is developing green manure cropping systems to control nematodes and fungal diseases in dryland taro (SW03-003). With the banning of methyl bromide, taro growers could see losses as high as 90% without a new alternative.

To help **Washington** potato growers cut fumigant expenses, **Andy McGuire** of WSU is testing a mustard crop plowed down as a green manure for its nematode-battling value (SW03-018). Success would help slice fumigant applications that typically cost \$250 an acre.



Broccoli, planted in rotation with strawberries, helps reduce soil-borne pathogens, a critical alternative as regulators ban chemical fumigants.



Radish and mustard planted in rotation with sugar beets not only reduce pesticide use but may also improve yields



“SARE has helped to make the term ‘sustainable practices’ known to far-reaching areas beyond farms and agriculture. Only through education and ‘doing’ can this awareness of sustainability be promoted to preserve our land, water, natural resources and quality of life for future generations.”
Susan Matsushima, president, Alluvion Inc., Haleiwa, Oahu, Hawaii

Light-touch tillage

Producers find innovative ways to cut soil disturbance



Rob Heater adapted strip tillage machines that he uses on nearly all of Stahlbush Island Farm's 2,500 acres near Corvallis, Oregon.



Heater straw mulches strip-tilled strawberries.



Randy and Sherrill Hines of Delta, Colorado, fashioned a tool to manage corn stalks under reduced tillage.

In the 1990s, Oregon soil scientist **John Luna** generated excitement over strip tillage among members of a Willamette Valley farm improvement group in western **Oregon**. Luna set out to test the idea with seven farmers (FW99-005). Among them was **Rob Heater**, manager of Stahlbush Island Farms near Corvallis. He strip tilled 300 of Stahlbush's 2,500 acres, planting the fields to sweet corn, broccoli and winter squash.

"All 10 of those fields performed fabulously," says Heater. "We've switched completely to strip till because of this grant. I can create a seedbed quicker and earlier and disturb only one-third of the ground. I will never switch back to conventional tillage."

Today across the West plows gather cobwebs as farmers hitch up tools with a lighter touch on the land. They've discovered that reducing tillage saves time, labor and fuel. It retains water. It raises fertility and organic matter and reduces erosion and runoff.

The Conservation Technology Information Center says conservation tillage—sometimes called direct seeding—reached 103.1 million acres in 2002, up from 73.2 million in 1990. In the West, the number rose to 9.9 million acres from 6.5 million.

Some of those acres belong to **Randy Hines**, who grows irrigated corn, wheat and beans near Delta, **Colorado**. Hines modified a tillage tool that forms a furrow for irrigation water while leaving a blanket of corn stalks to protect against erosion (FW00-012). The project has been educational. While reduced tillage in Hines' high-yield corn leaves too much residue, which slows the water's advance down the furrows, the practice succeeds with low-residue crops like pinto beans or silage corn.

Hines cites higher organic matter, reduced erosion and fewer tillage trips across the field, meaning less money spent on fuel.

In **Arizona**, reducing tillage is improving air quality. A University of Arizona project (SW98-068) found that reduced tillage systems in cotton not only trimmed the airborne particulate level to one-third that of conventional tillage but did it with one-fourth the energy.

In the Inland Northwest regions of **Idaho** and **Washington**, the late **Roger Veseth** generated considerable interest in conservation tillage by developing case studies of 16 farmers who had successfully adopted various methods (SW97-034). The project sponsored direct seeding conferences and disseminated information through proceedings, videos and a Web site, <http://pnwsteep.wsu.edu/dscases/index.htm>.



"My hope, my intention as a small farmer, is to write about my day-to-day farm life with an emphasis on 'getting in touch with your farmer self' for urban folk. I think many of them are unhappy because they belong on a small farm. I'd like to see small farms dotting the landscape again."

Mary Jane Butters, owner, Paradise Farm Organics, Moscow, Idaho

Four-legged pest control

In the West, noxious weeds have engulfed more than 70 million acres of private, state and federal land, and they're expanding their turf at 4,000 acres a day.

Chipping away at this massive invasion is daunting—like plowing a field with a toothpick. That hasn't stopped producers, researchers and educators from queuing up with innovative solutions, including prescribed grazing with sheep, goats and cattle.

In eastern Washington, extension beef specialist **Donald Nelson** launched a plan to teach the teachers (EW01-006) about prescribed grazing. In 2002, he coordinated workshops to teach 30 participants about multi-species grazing. Each was encouraged to form groups to initiate projects using prescribed grazing to snuff noxious weeds. The goal: demonstrate non-chemical methods of controlling invasive weeds and excessive fuel loads in areas where water, humans or rugged terrain restrict herbicide use.

In a separate grant (SW03-006), Nelson is using goats, sheep and cattle, along with selected herbicides, to see which combinations work best from economic, environmental and societal perspectives. On two Washington ranches involving 2,600 acres, the animals and herbicides will attack invasive plants like Russian olive, Scotch thistle, perennial pepperweed and knapweeds. Nelson hopes to reduce herbicide expense and environmental losses and provide alternative forage to produce meat and fiber.



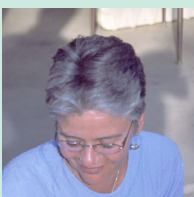
Jared Higley herds 250 goats grazing leafy spurge on the mountains east of Salmon.

Bonnie Jensen stressed over suggesting to her husband that he sell some beef cows to buy her some goats. But she'd done her homework, and Stan relented to buy 35 goats for grazing noxious weeds (FW01-039).

Today, the Jensens manage 750 does and 17 bucks. They contract with the Bureau of Land Management to graze leafy spurge on 8,000 acres in the mountains above Salmon and with the City of Salmon to graze spotted knapweed around the municipal water supply. In addition to income and feed from grazing weeds, they sell goats for meat and pick the top does for sale to other producers. In the process, they employ local youth they hire to herd.

"It's a success," declares Stan. "The cows would go down the road before the goats."

The success has Bonnie dreaming of conducting a herding school, building a goat dairy to produce milk and cheese and inviting tourists to enjoy the goat-herding experience. And for Stan: He dreams of taking the goats south to Arizona for kidding and grazing during Salmon's long winters.



Weed eaters



Bonnie and Stan Jensen of Salmon, Idaho, hire out their goats to graze unwanted vegetation.

"Sustainable practices in agriculture are critical to the health of every aspect of our ecosystem. It's therefore imperative that we promote and support the research and education that will bring these practices into the mainstream."

Kathy McCarthy, contaminant hydrologist, U.S. Geological Survey, Portland, Oregon

Animals harnessed to knock back weed and insect pests



Leafy spurge has slithered over millions of acres of Western range and crop land.



Goats substitute for herbicides to choke off spotted knapweed at the Salmon water supply.

Jim Jacobs of Montana State University hopes to thwart spotted and diffuse knapweeds using grazing sheep, a flightless weevil and desirable native plants (SW03-056). Two **Montana** ranchers will test various combinations of these non-chemical tools to restore healthy, diverse plant communities that are resistant to reinvasion by weeds.

In **Idaho**, **Jeff Nauman** of the state Department of Lands is working with ranchers **Ray** and **Marianne Holes** of the Lazy H Ranch. They're assessing various combinations of goat grazing and prescribed burning to beat back undesirable brush on recently harvested and newly planted forest plantations (FW03-307). Nauman says the forest industry, like much of agriculture, has come to rely on the quick fix of chemical herbicides, which can reduce soil productivity and stimulate dependence. He hopes to educate owners of large tracts of Idaho timberlands about the benefits of browsing.

Bug beaters



Sheep graze grain stubble in Montana to suppress wheat stem sawflies and recycle nutrients.

In Montana, they're using sheep to fight crop-damaging insects. Pat Hatfield, Montana State University animal scientist, found that grazing sheep suppress the wheat stem sawfly in wheat stubble better than tillage or burning. And sheep grazing alfalfa in winter and spring trim weevil populations by 70% (SW00-015).

Not only do grazing sheep save producers the expense of burning, tillage and insecticides, the sheep crimp weed populations and recycle nutrients without compacting the soil. In return, the sheep owner gets an economical, sustainable source of feed.

"Historically," says Hatfield, "farmers have been able to see immediate results from technological advances like fertilizer, pesticides and genetically altered plant varieties. Our program, though less costly, progresses more slowly, requiring long-term commitment."



"Human activity demands the use of our natural resources. But that use must be renewable, not depletive, if the human species is going to survive."

Gus Hughbanks, state conservationist, Natural Resources Conservation Service, Spokane, Washington

<http://wsare.usu.edu>

Cultivating farmers

Projects lend helping hands to new and small producers

Tony and Barclay Daranyi began farming in 2000 near Norwood in southwest Colorado, raising chickens on pasture, growing vegetables in hoop houses and baking bread they sell at a nearby resort (FW01-010). They try to learn about farming from others.

“I don’t like to be the first person on the learning curve,” says Tony Daranyi.

Several Western SARE grants focus on helping producers like the Daranyis climb the learning curve.

Sue Donaldson, water quality specialist with the University of Nevada in Reno, notes that on the fringes of the West’s bulging cities, fresh landowners settling on retired agricultural land are rarely equipped as effective land stewards. Yet they hunger for guidance to do the right thing.

To feed the appetite for these and other small landholders, Donaldson, working with specialists from **California, Colorado, Idaho, Montana, Nevada, Oregon, Utah and Washington**, developed training materials for ag professionals who work with owners of small acreage (EW99-003). To date, nearly 1,000 copies of the materials—15 PowerPoint lessons and an instructor’s guide—have been distributed to 34 states and Australia.

In the Seattle area, in the wake of rapid urbanization and an aging farmer population, a new breed of farmer is succeeding on small tracts of land by selling directly to urban consumers. Few of these farmers grew up on farms or attended an agricultural university. To assist, **Brad Goalach**, a **Washington** extension educator, is developing a model program called “Cultivating Success” (SW03-016). It will train beginning and transition farmers in understanding the essentials of farm planning, production, stewardship and marketing.

Cinda Williams of the University of **Idaho** notes that three-fourths of Washington farms and two-thirds of Idaho farms are classified as small—from 1 to 179 acres—and many new small farmers are emerging. Her project (EW03-009) is providing ag professionals with an easy-to-use curriculum to train and mentor small farmers, old and new.

In **Hawaii** and the **Pacific islands**, new farmers are cultivating former plantation land at a time when residents and chefs at local restaurants, hotels and resorts are demanding locally and sustainably grown vegetables, fruits and herbs. To help these farmers produce and market their crops, **Samir El-Swaify** of the University of Hawaii is developing a trainer workbook and CD, Web site and manual so ag professionals can educate new farmers (EW03-002).



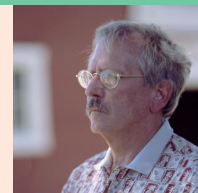
Many beginning farmers, like Tony Daranyi, target food niches with innovative approaches.



New and small farmers are getting help to manage their land in ways that are productive and environmentally sound.

“We must focus on existing and developing technologies that enhance productivity and environmental quality as well as economic viability. In doing so, we must avoid excluding technologies considered to be controversial, such as biotechnology. The Hawaiians have a concept, *ahapu`a`a*, which means ‘from the mountain to the sea’ or, in Western terms, watershed, which they used to manage all aspects of their existence. We should view sustainability in a similar broad manner.”

Mike Harrington, executive director, Western Association of Agricultural Experiment Station Directors, Fort Collins, Colorado



Going under cover

Cover crops reduce erosion and supply nutrients to the soil



Jerry Van der Veen, a northwest Washington dairy farmer, has been growing relay crops of grass between his corn rows since 1996.

After corn harvest, Jerry Van der Veen's soil lay naked, exposed to erosion from northwestern Washington's heavy rainfall. He'd heard about "relay cropping" in Canada and decided to give it a whirl (FW95-100). The Mount Vernon dairy farmer plants corn in early May. At the six-leaf stage, he cultivates, band sprays and plants his relay crop of annual tetraploid ryegrass. Then he forgets about it till harvest.

"When the corn comes off, there are more weeds and the grass looks like nothing," says Van der Veen. "But pump a little manure, give it some sunshine and it grows like crazy."

The grass can be plowed down as a green manure or harvested as forage, sometimes providing two cuttings and allowing him to utilize the nutrients by recycling them through the cows. The Natural Resources Conservation Service is promoting the practice, adopted by at least two area producers.

In the desert Southwest, Milt McGiffen, vegetable crops specialist with the University of California Riverside, tested cowpea, plowed down as a green manure or used as mulch in reduced tillage systems. The cover crop increases yields, requires little water, takes no fertilizer, produces biomass and nitrogen and reduces weeds and nematodes (SW98-044).

"The Western SARE funding has certainly changed the way producers look at things," says McGiffen. "The project has provided them with new tools that are being used on thousands of acres."

In California's San Joaquin Valley, producers lacked information and experience on cover crops. Jeff Mitchell, vegetable crops specialist at UC Davis, anticipated that cover crops could reduce rainfall runoff, increase water infiltration and scavenge residual nitrogen to reduce leaching in the valley's intense cropping systems (SW97-045). Mitchell found that four cover crops—barley, vetch, phacelia and a barley-vetch mix—all decomposed rapidly during spring and summer, "providing new information on an important management option for carbon sequestration."

To promote the use of cover crops in the Pacific islands, Richard Bowen of the University of Hawaii coordinated a project that gathered information on 26 cover crops and green manures (EW98-012). Specialists from Hawaii, Guam and the Northern Marianas Islands conducted workshops with farmers and ag professionals, developed a Web site with plant descriptions, established 11 plots on six islands to demonstrate the crops and created a CD-ROM and a series of leaflets on tropical cover crops.



Vegetable growers in the desert Southwest are growing cowpeas as a cover crop for mulch or plowed down as green manure.



"A unique strength of Western SARE is its 'grounded' projects involving land managers/farmers asking the questions and helping to devise answers that work for their operation. This promotes stewardship with producers actively assuming responsibility for the land and the surrounding environment in a manner that respects the long-term ecology and community values while recognizing the need for economic vitality."

Sandy Halstead, agriculture initiative specialist, EPA Region 10 Office of Ecosystems and Communities, Prosser, Washington

<http://wsare.usu.edu>

13

Righting the range

Returning riparian zones and rangelands to healthy condition

Public rangelands, once regarded as simply fodder for grazing cattle and sheep, are increasingly cherished for their environmental and recreational values. Multiple users yield multiple challenges, especially around riparian areas—the fragile fringes along streams and lakes.

Western SARE research dollars are helping to shore up the productivity and environmental integrity of public and private rangelands.

In **Montana**, **Derek Bailey** of MSU has shown that some cattle lounge near streams (bottom dwellers), while others are more energetic (hill climbers). Ranchers who select hill climbers, whether by individual or breed, may end up with more evenly grazed rangelands and better protected riparian areas (SW98-064). What's more, animals that range more widely perform just fine, keeping herd production on an even keel.

Working under the premise that responsible managers want to know if grazing is degrading their resources, **Ken Tate**, rangeland and watershed specialist, surveyed 300 **California** rangeland riparian sites. From the information collected, Tate is developing tools that will help managers conduct, monitor and document riparian-friendly grazing (SW01-044 and SW03-037).

Pat Momont, extension beef specialist in **Idaho**, did similar research on a southeast **Oregon** drainage that serves as spawning habitat for migrating salmon (SW97-010). He found that herding and providing off-stream water and shade during late summer grazing can help preserve riparian health.

Eastern **Arizona** rancher **James Crosswhite** is using a combination of fencing, mechanical brush control and the broadcast of native seeds to rehabilitate a 2.5-mile degraded stretch of Nutrioso Creek (FW03-002).

The enduring drought presents yet another challenge to rangeland cattle producers, especially in the Southwest.

Arizona livestock specialist **Bob Kattnig** taught Indian tribes about managing cattle in dry times (SW98-036). Adopting the notion that Mother Earth—the center of Indian cultural and spiritual values—is tired, Kattnig helped producers reduce rangeland pressure through culling, supplementing water and nutrients and marketing animals to conserve capital.

Maria Fernandez-Gimenez is developing a range management curriculum for the Tohono O'odham Nation in **Arizona** to restore damaged rangelands (SW02-051). It will incorporate science and tradition and reflect the cultural, political, economic and environmental contexts of range management on the nation. Fernandez-Gimenez is invoking wide support from livestock producers, community members, educators and natural resource professionals.



Derek Bailey, project coordinator, and Steve Lairy, research technician, check cattle position during trailing, which may indicate where the cattle graze.



Western SARE projects are helping ranchers do a better job of managing the riparian areas their livestock graze.

“The future of agriculture, or civilization for that matter, depends on a healthy and productive resource base. Even as farmers and ranchers seek to generate increased profits and yields, we have an obligation to retain sound production practices and an ethic of renewal so that our grandchildren may share the same opportunities we presently enjoy.”

Mark Frasier, owner-operator, Frasier Farms, Woodrow, Colorado



Consider the alternatives

Producers look at new ways to capitalize on old resources



Michele Hebert, Western SARE PDP coordinator in Alaska, checks native plants grown to vegetate disturbed landscapes, including North Slope oil fields.



Washington vegetable producer Owen Shaffner is testing consumer interest in baby corn.



Livestock nutritionist Woody Lane, left, is teaching western Oregon livestock producers Karen Murphy and John Neumeister about new ways to manage their pastures.

Alaska's vast and beautiful landscapes sometimes wear the scars of human activity, like drilling for oil on the state's North Slope.

Mike Emers, who grows vegetables at Rosie Creek Farm near Fairbanks, imagined that Alaska producers could grow an alternative crop of native legume seed. The legumes could be planted with native grasses to heal the scars, at the same time filling a commercial seed void in interior Alaska and providing a new source of income for local producers (FW00-050).

As with Emers' project, Western SARE funds allow producers to test alternatives while reducing the fear of risk.

Owen Shaffner, who produces and sells vegetables on his Montesano, Washington, farm, experimented with growing and marketing fresh baby corn, miniature ears typically pickled and used in Asian dishes (FW98-002). He grew several varieties, focusing on one that tasted best.

"The research was a success," says Shaffner, who marketed fresh ears to a high-end grocer. "Several hobby farmers are growing baby corn because of this project."

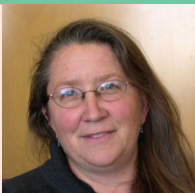
Northwest of Eugene, several Oregon livestock producers developed a grazing network to find alternative and more productive ways to manage their resources. The Willamette Valley Grazing and Nutrition Group (WVGANG) conducted tours and classes, and many of its members are changing fertility and grazing techniques (FW99-071).

Network member John Neumeister likes visiting other farms to see creative approaches that might apply to his own sheep operation, and member Karen Murphy, adds, "There are endless topics for discussion, and enthusiasm is high."

California dairyman Dean Martin converted from a year-round to a seasonal operation, freeing his cows from the barn to graze on pasture. The transition to intensively managed grazing has reduced his cost of hay, increased cow body condition and increased milk production (FW00-008).

"If I hadn't made the changes when I did," says Martin, "I would not still be in the dairy business today."

In Washington, WSU specialist Ed Adams conducted 11 workshops on potential alternative crops for dryland agriculture in the Intermountain West (EW99-009). Nearly 200 producers and professionals attended the workshops, from which 10 extension bulletins were created, and several producers have tested the new crops.



"My vision for American agriculture is a rural landscape where a variety of nutritious foods are produced. This landscape is managed by farmers and ranchers equipped with the resources and incentives—and freed from the disincentives—to produce food, fiber and other public benefits including wildlife habitat, energy, recreation, scenic open space and floodplain management. The Western SARE program is an essential component in making such a vision reality."

Casey Walsh-Cady, environmental scientist, California Department of Food and Agriculture, Sacramento, California

Plant a tree

Agro-forestry sustains farms and environments

To make way for new projects on Whidbey Island in Washington, developers often bulldoze native shrubs and forest to create park-like vistas around ensuing structures. In short order, invasive plants engulf the site.

Michael Seraphinoff and the volunteers of South Whidbey Tilth saw opportunity in the desecration to salvage native plants to sell at Tilth's farmers market (FW01-019). Their education led them to take another step and create a native plants demonstration garden, providing homeowners and developers with landscaping ideas (SW02-039).

"A number of people have looked at it and been inspired by what's been done at our demonstration," says Seraphinoff. Adds Tilth volunteer Barbara Kolar, "We wanted to show that forests and woodlots can make important contributions."

In the Pacific Islands, hundreds of producers and agricultural professionals know more about the value of integrating trees into farm and ranch operations, thanks to *Agroforestry Guides for the Pacific Islands*. Craig Elevitch, director of Permanent Agriculture Resources in Holualoa, Hawaii, led a project that developed eight 16-page handbooks (EW98-004). They detail how trees can generate revenues, serve as windbreaks and reduce reliance on commercial fertilizer imported from the U.S. mainland.

"The publication very eloquently makes a case for reintroducing and emphasizing trees in our island agriculture," says Bill Raynor of The Nature Conservancy in Micronesia.

Mari Marutani, a horticulturalist with the University of Guam, is testing how well several species of nitrogen-fixing trees planted as hedgerows adapt in different soil types on Guam (SW99-048). Publications and videos that evolved from the project will show producers which species adapt best on which soils as well as which are susceptible to diseases and insects.

Another proponent of hedgerows is Molly Johnson of the Community Alliance with Family Farmers. She's teaming with several partners to teach ag professionals in central and northern California about incorporating native plant hedgerows into farms and ranches. The idea is that the hedgerows can encourage biodiversity, expand wildlife habitat and improve water quality (EW03-007).

To enhance the value of his east Oregon woodlot, Tim Grant tested Oregon white truffles, an underground fruit (FW97-007). He ground the truffles and applied them as a powder around the base of his trees. Not only did Grant document increased tree growth, he's hoping to harvest and sell the truffles.



Mike Seraphinoff and other members of South Whidbey Tilth are developing a forest salvage and native plant demonstration project.



Tim Grant found that Oregon white truffle powder encouraged tree growth.

"I am proud to be a part of SARE. My business goal for the last 30 years has been to seek methods for providing people with profitable business strategies. Within the framework of SARE, I am able to take that, marry it with my passion for organic agriculture and contribute to profitable, sustainable farming communities while at the same time protecting and improving the environment for my grandchildren."

Steve Jacobson, vice president of operations, Horizon Organic, Longmont, Colorado



Engines of ingenuity

Western SARE projects tap creativity vein



Spreading oyster shell between lavender rows yielded unintended benefits for Jadyne and Mike Reichner of Sequim, Washington.



Steve Keller and his son, Wiley, milk their sheep, adding an income stream beyond lamb and wool.



George Davis fashioned an automatic solar-powered irrigation water diversion gate using off-the-shelf components.

Necessity and creativity are often the mothers of sustainable agriculture invention. And sometimes the results diverge from the intention.

Consider **Jadyne** and **Michael Reichner** of Sequim, Washington, who applied crushed oyster shells between lavender rows hoping to mimic the light-enhancing white sandy soil of French lavender fields (FW01-052). The light, they figured, would improve plant growth and lavender oil yield.

While still assessing the light's effects, the Reichners have found the oyster shell virtually eliminates weeding and irrigation and contributes micronutrients to the plants at Purple Haze Lavender. As finances permit, they'll apply the crushed shells to their entire 7.5 acres of lavender.

Milking sheep as a way to extract added value beyond lamb and wool is nothing new if you live in Wisconsin or the British Isles. But in the Western United States, folks think it's a little odd.

"Most of the ranchers I've talked to think this is pretty weird," says **Steve Keller**, whose family and five part-time helpers milk more than 200 sheep from April through August on Keller's Monte Vista, Colorado, farm (FW99-065). The milk is sold to cheese makers in New Mexico and Colorado.

"We're expanding as fast as we can," says Keller. "Both of our customers want more milk for a longer season."

Idaho diversified row crop farmer **George Davis**, working with the Bureau of Reclamation, came up with an automated head gate (FW99-012). Powered by solar panels, the device regulates and measures the flow of irrigation water in response to fluctuating water levels in the delivery ditch.

Hawaii tropical fruit producer **Ken Love** of Captain Cook tried wrapping his fruit while it grows on the tree (FW02-008). The protective bags retarded pests and increased fruit value by improving color and lengthening hanging time, making the fruit available off season. A surprising result: less labor, thanks to reduced time for culling and inspection.

Dave Chaney, UC-Davis, found a creative use for the Internet, developing an on-line integrated pest management course for **California** certified pesticide applicators (EW98-001). Users can complete the course at their own convenience instead of disrupting their busy schedules to attend classes.



"As we move to sustainable farming systems, we need to bring back a diverse infrastructure and diverse agricultural processing systems that will help us reestablish our rural communities. I think the Western SARE program provides the opportunity to do that."

Karl Kupers, owner-operator of K&J Farms, Harrington, Washington

Cool, clear water

Nutrient management reduces costs, cleans water

Colorado rancher **Wilbur Miller** has long wanted to stop using chemical nitrogen and phosphate to fertilize hay meadows on his 1,200-acre ranch. The chemicals, he says, are costly to his operation and to the environment.

Miller laid out test plots, each 40 feet wide and an eighth of a mile long, applying varying rates of fertilizer including zero (FW02-003). His soil tests were the same between years and plots, and yield differences were negligible, persuading Miller to wean his fields from the nutrients.

“I’ve always suspected that this was the route to go. I really detest putting on nitrogen fertilizer or any fertilizer at all,” says Miller, who has never used pesticides in a lifetime of ranching.

No matter if by reducing, eliminating or redistributing agricultural nutrients, careful management can save money, improve crops and livestock and protect water above and below the ground.

In **Hawaii**, cattle producer **Dwayne Cypriano** is assessing whether nutrient cycling—in a rotation system involving legumes, grass and cattle—can heal the nutrient-depleted soils on former sugar cane lands now exposed to erosion from wind and water (FW03-018).

Dan Sullivan of Oregon State is collaborating with university scientists in **Idaho**, **Oregon** and **Washington** to train ag professionals in better communications about nutrient management (EW00-011). The goal: help landowners manage nutrients in ways that avoid harming human and environmental health.

Washington nutrient specialist **Joe Harrison** is training dairy and poultry professionals in the use of computer models and software that can help producers manage feeds brought to the farm. The idea is to achieve nutrient balance and economic analysis for entire operations (EW03-003). In a related project, Harrison has set up in-line flow meters on the Werkhoven Dairy in western Washington to measure nitrogen, phosphorus and potassium in manure (FW03-302). Coupled with soil tests, the nutrient measures will help the dairy with its long-term strategy to achieve whole farm nutrient balance.

Utah dairy specialist **Allen Young** is collaborating with researchers in Maryland to help dairy producers fine-tune the nutrients that enter and leave the dairies (SW99-024). Young is adapting a nutrient-management computer program, developed at the University of Maryland, to dairies in the West.

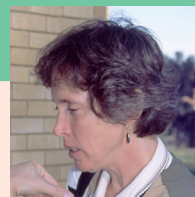
To capture the nutrients from commodities considered as wastes from other processes, **Dale Zobell**, an animal scientist at **Utah** State University, is testing the feed value of whey and cereal crop residues for both beef and dairy cattle (SW01-001).



Wilbur Miller of Westcliffe, Colorado, is cutting back chemical fertilizers to trim expenses, protect water and leave the ranch in better shape for his granddaughter, Stephanie.



Western SARE projects are teaching dairy operators how to manage the nutrients that enter and leave their farms as a way to reduce cost and protect water quality.



“SARE’s regional structure ensures that our national program stays relevant. Our four regions—with advice from local stakeholders on our administrative councils—shape regional priorities, recommend funding decisions and tailor information to those who really want it.”

Jill Auburn, director, National SARE, Washington, DC

The whole farm

The systems approach embraces circles and cycles



Henning Sehmsdorf's 50-acre S&S Homestead Farm on Lopez Island is a model of the whole-farm approach.



Farmers in American Samoa and the Northern Mariana Islands are capturing nutrients from fish ponds to grow bananas, taro and other crops.



“Sustainable agriculture uses both local knowledge that is specific to place and scientific knowledge that looks to larger systems. We need both types of knowledge, which develop over time, to support farming and ranching in the West.”

Deborah Young, associate director, University of Arizona Cooperative Extension, Tucson, Arizona

Washington farmer **Henning Sehmsdorf** imagined that growing organic barley on his S&S Homestead Farm would forge another link in his chain of self-sufficiency. His test yielded more than he expected: Sehmsdorf harvested 2 tons of grain and 2 tons of straw from his 2-acre field. And when the loan of tillage equipment failed to materialize, the beef cattle he wintered on the barley plot broke the sod and fertilized the soil (FW01-081).

With soil fertility and organic matter enhanced by the manure, Sehmsdorf is now planning a three-year rotation: barley followed by a cover crop of clover and rye followed by vegetables. The barley will feed his chickens, pigs and a single Jersey milk cow. The cover crop and vegetables will take up the accumulated nutrients deposited by the over-wintering beef cows, which he'll rotate through the plot using electric cross-fencing.

“Over time we have learned to minimize purchased inputs producing animal feeds and natural fertilizer on the farm as needed,” he says.

In addition to cycling crops and livestock, Sehmsdorf recycles rainwater collected from rooftops, and he's built his home, buildings and raised vegetable beds from trees harvested sustainably from the farm's forests.

In **American Samoa** farmer **Litani Ahoia** supports self-sufficiency by encouraging other farmers to collaborate on producing local food for local consumption. Ahoia's systems approach integrates pond production of fresh-water fish with vegetables raised using overflow water (FW98-021).

Fingerlings and vegetable seedlings are distributed to cooperative members to raise at their homes, reducing their costs for fruits and vegetables otherwise flown in from great distances (FW98-021). Ahoia says the project is encouraging more people to try commercial farming.

Likewise, **Vince Calvo**, a **Northern Mariana** farmer, has set up an aquaculture and fertigation project to raise tilapia fish, using the waste water to irrigate and fertilize taro, bananas, watercress and other crops (FW00-104). The effluent-rich wastewater from the fishponds supplants expensive imported fertilizer.

“There is visual evidence that the irrigation has replaced the use of commercial fertilizer in my crops,” says Calvo, who adds that the sale of fish has proved economically beneficial.

On Pohnpei, the garden island of **Micronesia**, **Kalistus Marquez** hopes to produce an island beverage called sakau in a way that reduces environmental destruction (FW01-028). Increased consumption of sakau—extracted from pepper plant roots—has prompted farmers to clear upland forests to grow more plants, increasing erosion and reducing water quality. Marquez is growing discarded pepper plant nodes in a nursery fertilized with pig manure, recycling both the nodes and the waste and slowing the denuding of upland forests.

The people behind the scenes

Western SARE's **Professional Development Program** is managed through the University of Wyoming—(307) 532-8892—in cooperation with the staff at USU. Staff member and email addresses are:

Jim Freeburn, PDP coordinator, freeburn@uwyo.edu
Al Kurki, associate PDP coordinator, alkurki@imine.net
Diane Ells, assistant regional training coordinator, dells@uwyo.edu
Joleen Pantier, PDP contracts manager, jpantier@uwyo.edu

Each of the 17 states and U.S. Trust Territories in the Western SARE region has a Professional Development Program coordinator:

Alaska, **Michele Hébert**, Alaska Cooperative Extension, P.O. Box 75-8155, Fairbanks, AK 99775-8155, (907) 474-2423, ffimah@uaf.edu

American Samoa, **Don Vargo**, American Samoa Community College Land Grant Program, P.O. Box 5319, Pago Pago, AS, 96799, 011 (684) 699-2550, DonVargo@rocketmail.com

Arizona, **Rick Gibson**, University of Arizona Cooperative Extension, 820 E. Cottonwood Lane, Bldg. C, Casa Grande, AZ 85222, (520) 836-5221, ext. 227, gibsonrd@ag.arizona.edu

California, **David Chaney**, University of California Cooperative Extension, One Shields Avenue, Davis, CA 95616-8716, (530) 754-8551, dechaney@ucdavis.edu

Colorado, **Dennis Lamm**, Colorado State University Cooperative Extension, 212C Animal Sciences, Fort Collins, CO 80523-1171, (970) 491-5168, dlamm@agsci.colostate.edu

Guam, **Frank Cruz**, CALS, UoG Station, Mangilao, GU 96923, (671) 491-5168, fcruz@uog.edu

Hawaii, **Richard Bowen**, University of Hawaii Department of Natural Resources and Environmental Management, Sherman Lab, Honolulu, HI 96822, (808) 956-8419, rbowen@hawaii.edu

Idaho, **Cinda Williams**, University of Idaho Cooperative Extension, Plant, Soil and Entomological Sciences, Moscow, ID 83844-2339, (208) 885-7499, cindaw@uidaho.edu

Micronesia, **Jackson Phillip**, College of Micronesia, P.O. Box 1866, Kolonia, Pohnpei, FM 96941, (691) 320-5731, jphillip@comfsm.fm

Montana, **Sue Blodgett**, Montana State University Department of Entomology, 410 Leon Johnson Hall, Bozeman, MT 59717-3020, (406) 994-2402, blodgett@montana.edu

Nevada, **John Burton**, University of Nevada Cooperative Extension, Dean and Director's Office, MS 404, Reno, NV 89557-0106, (775) 784-7070, burtonj@unce.unr.edu

New Mexico, **Craig Runyon**, New Mexico State University Cooperative Extension, P.O. Box 30003, MSC 3AE, Las Cruces, NM 88003, (505) 646-1131, crunyon@nmsu.edu

Northern Mariana Islands, **Mark Bonin**, College of Northern Mariana Islands, P.O. Box 879, Rota, CNMI, MP 96951, (670) 532-9513/11, markb@vzpacifica.net

Oregon, **Dan McGrath**, Oregon State Extension Service, 104 Fourth St. SW, Room 102, P.O. Box 765, Albany, OR 97321-0261, (541) 967-3871, ext. 2397, daniel.mcgrath@oregonstate.edu

Utah, **Bob Newhall**, Utah State University Plants, Soils and Biometeorology Department, UMC 4820, Logan, UT 84322-4820, (435) 797-2183, bobn@ext.usu.edu

Washington, **Andy McGuire**, Washington State University Cooperative Extension, Center for Sustaining Agriculture and Natural Resources, Ephrata, WA 98823, (509) 754-2011, ext. 413, amcguire@coopext.cahe.wsu.edu

Wyoming, **Mike Smith**, University of Wyoming Department of Rangeland Ecology and Watershed Management, P.O. Box 3354, University Station, Laramie, WY 82071-3354, (307) 766-2337, pearl@uwyo.edu



Western SARE is hosted at Utah State University. Most of our staff members work in Logan at USU, through which the competitive grants are administered. They can be reached by phone at (435) 797-2257. Staff members and their email addresses are:



Phil Rasmussen, Western SARE coordinator, philtr@ext.usu.edu



Bob Newhall, deputy coordinator, bobn@ext.usu.edu



Florence Hinck, administrative assistant, fnhinck@cc.usu.edu



Kristi Jensen, contracts manager, kristi@mendel.usu.edu



Ann Frederickson, computer analyst, asfred@cc.usu.edu



Ron Daines, communications specialist, rjdaines@msn.com

A distinctive hallmark of SARE is its regional Administrative Councils. Members come from all walks of agriculture life, each lending a unique perspective, much the way a board of directors does for a corporation. On the preceding pages, you've met members of our Western SARE Administrative Council, and we list them all here for your convenience:

Susan Matsushima, chair and agribusiness representative, owner, Alluvion Inc., 61-676 Kamehameha Highway, P.O. Box 820, Haleiwa, HI 96712, (808) 637-8835, alluvio@aloha.net

Mark Frasier, chair elect, farmer/rancher representative, 5725 Hwy. 71, Woodrow, CO 80757, (719) 775-2920, frasierm@ria.net

Kathleen McCarthy, U.S. Geological Service representative, 10615 SE Cherry Blossom Dr., Portland, OR 97216-3159, (503) 251-3257, mccarthy@usgs.gov

Mike Harrington, Western Association of Agricultural Experiment Station Directors representative, 16 Administration Bldg., Colorado State University, Fort Collins, CO 80523, (970) 491-6280, wadal@lamar.colostate.edu

Deborah Young, Western Cooperative Extension representative, University of Arizona Cooperative Extension, 301 Forbes, Bldg., Tucson, AZ 85721, (520) 621-5308, dyoung@ag.arizona.edu

R.L. "Gus" Hughbanks, USDA Natural Resources Conservation Service representative, USDA-NRCS, 316 Boone Ave., Suite 450, Spokane, WA 99201-2348, (509) 323-2900 gus.hughbanks@wa.usda.gov

Jill Auburn, National SARE representative, USDA CSREES-ECS-SARE, 1400 Independence SW, Stop 2223, Washington, DC 20250-2223, (202) 720-5384, jauburn@reusda.gov

Sandy Halstead, EPA representative, US EPA Region 10, WSU-IAREC, 24106 N. Bunn Rd., Prosser, WA 99350, (509) 786-9225, halstead.sandra@epa.gov

Stacie Clary, nonprofit representative, California Sustainable Agriculture Working Group, P.O. Box 1599, 303 Potrero St., Suite 29-106, Santa Cruz, CA 95061, (831) 457-2815, stacie@calsawg.org

Casey Walsh Cady, Western Association of State Departments of Agriculture representative, California Department of Food and Agriculture, 1220 N. Street, Rm. A-468, Sacramento, CA 95814, (916) 651-9447, ccady@cdfa.ca.gov

Steve Jacobsen, agribusiness representative, Horizon Organic Dairy, 6311 Horizon Lane, Longmont, CO 80503, (303) 530-2711, stevej@horizonorganic.org

Mary Jane Butters, organic farmer/rancher representative, Paradise Farm Organics, 1000 Wild Iris Lane, Moscow, ID 83843, (208) 882-6819, maryjane@maryjanesfarm.org

Karl Kupers, sustainable farmer/rancher representative, 12996 Kupers Road North, P.O. Box 465, Harrington, WA 99134, (509) 253-4423, kjkupers@golfing.org

The position representing the USDA's Agricultural Research Service was vacant at the time of publication.



Western Region



Sustainable Agriculture Research and Education

For more information, contact:
Western SARE Program
Utah State University
Agricultural Sciences Building
Room 305
4865 Old Main Hill
Logan, UT 84322-4865

Phone: (435) 797-2257
Fax: (435) 797-3344
Email: wsare@mendel.usu.edu
Web: <http://wsare.usu.edu>

Western SARE is one of four regions of the Sustainable Agriculture Research and Education program administered by the U.S. Department of Agriculture and the Cooperative State Research, Education, and Extension Service.



Host Institution

UtahState
UNIVERSITY

February 2004