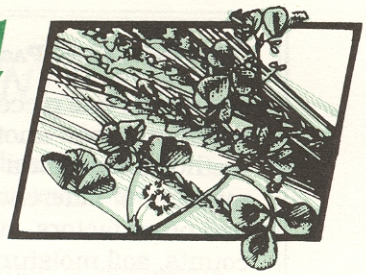
SUSTAINABLE FARMING Quarterly



VOL. 4 NO. 4 FEBRUARY 1993

WHY ON-FARM TESTING CAN MAKE A DIFFERENCE

BY STUART WUEST, STEEP II ON-FARM TESTING COORDINATOR, WASHINGTON STATE UNIVERSITY, PULLMAN.

There is a lot of talk today about "on-farm research," "participatory research," and other types of research in which farmers play an important role. The involvement of farmers is the common theme, but the intent and form of these efforts span a wide spectrum. It is important that the reader understand my definition of on-farm testing before I tell of its value and relate what we here at Washington State University have learned about design and performance.

The term "on-farm testing" (OFT) was chosen by a group of investigators working under the federal Solutions to Environmental and Economic Problems (STEEP II) program, focused on the dryland region of Idaho, Oregon and Washington. The goal is to teach farmers how to perform meaningful tests of alternative crop production practices on their own farms, using their own equipment. On-farm testing, therefore, is a tool they can use to answer their own questions.

The methods we are developing are appropriate for an individual farmer who is working alone to answer questions for his or her farm. They are also appropriate for groups of farmers working together on alternative practices with test sites on one or several farms. Once the principles have been learned, on-farm tests can be designed and managed by farmers without outside help, but in many cases industry, research, and extension personnel also will become involved.

What is on-farm testing and what can it do for a grower? On-farm testing brings scientific methods to the comparisons that many farmers already do. The comparison might be of different seeding rates, fertilizer rates, varieties, cover crops, timing of herbicide application, no-till versus conventional seeding — almost anything the farmer might

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CONSERVATION RESERVE PROGRAM TO RETIRE SOON

WILL DECADE OF PROGRESS BE PLOWED UNDER?

THIS COMMENTARY IS COMPILED FROM RECENT PRESENTATIONS MADE BY AERO STAFF ON MONTANA PUBLIC RADIO AND AT A CONSERVATION RESERVE PROGRAM SYMPOSIUM IN GREAT FALLS, MONT.

Within the next four years, our president and the Congress will decide the fate of millions of acres of land in the western states. This is not about wilderness areas or other public lands; it is about the Conservation Reserve Program (CRP).

Congress created the CRP in 1986, at the urging of national environmental groups and with the consent of major farm and commodity organizations. Its goal was to prevent erosion on land unsuitable for cropping.

SEE RELATED STORY PAGE 3

The program pays farmers to take highly-erodible land out of crop production and plant "permanent cover," usually grasses. For each acre idled, the government pays an agreed-upon amount (up to $45 in Montana) each year for 10 years — the life of the contract.

The program met its goal; soil erosion has dropped on the CRP acres. But the 10-year CRP contracts begin to expire in 1995.

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INSIDE THE SFQ ——

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do to farm one piece of ground differently than another. The method allows for a meaningful measure of differences in yield and other factors, such as weed counts, soil moisture, plant stand, soil nitrogen, soil erosion, disease, etc.

The major difference between "trying a little" of a new practice and doing an on-farm test is that the latter includes several unbiased, side-by-side comparisons between the old practice and the new. The payoff is a tremendous increase in confidence when you confirm that the difference you have observed is in fact caused by the alternative practice, and you have a record of how much the difference is.

A properly designed on-farm test reduces the chances of disappointment due to confusing or contradictory results. It also requires minimum risk. The new practice often need be applied to only two or three acres, which is a plus if the trial practice is expensive or has unknown risks, such as a possible increase in weed populations. The small acreage requirement also helps when you are borrowing equipment from a neighbor or dealer.

Growers benefit from their on-farm testing in several ways.

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STAFF: SALLY K. HILANDER, EDITOR; DAVID GRANATSTEIN, PROJECT COORDINATOR; ALLEN BJERGO, EXTENSION SERVICE LIAISON.

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Traditional agricultural research probably will never be able to completely tailor new ways of farming to each farm. It can also be argued that farmers have been and continue to be among the top inventors and innovators. On-farm testing offers an efficient way for farmers to produce the data they need in order to pursue their own goals and take charge of the challenges they face in their agricultural enterprises.

The success of the Practical Farmers of Iowa is evidence of the power of on-farm testing placed in the hands of farmers determined to find a better way.

EXAMPLES OF ON-FARM TESTS CONDUCTED IN 1992

During 1992, the STEEP OFT project helped growers with 23 on-farm tests in Washington, Idaho, and Oregon (Wuest, 1992). The 1992 growing season was lacking in rainfall, and many crops did not yield at normal levels. This had a marked effect on the results of fertilizer tests because the demand for nutrients was generally low. The lack of highly-erosive conditions also prevented a good comparison between practices in terms of erosion. There were some interesting discoveries made, however. **TABLE 1** on page 4 gives an overview of the most interesting results.

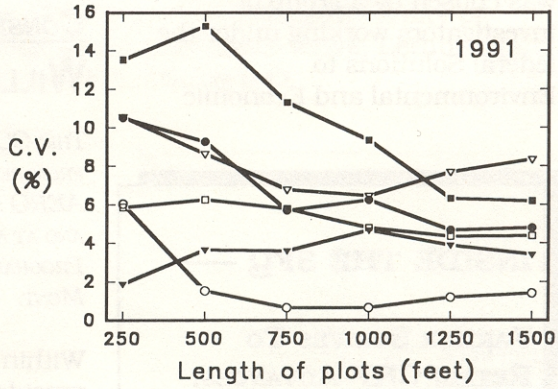
DEVELOPMENT OF METHODS FOR ON-FARM TESTING

One goal of the STEEP II On-Farm Testing Project is to make sure that farmers are getting the best possible results from the effort they invest in on-farm testing. Two years of field experiments investigating the optimum size and shape of test plots for farmer use, and the optimum number of replications (the number of independent, side-by-side comparisons) was completed. Combined with data from 1992 on-farm tests done by growers, these experiments show that a properly designed on-farm test can produce excellent data.

A major problem that an on-farm test must overcome is field variation, and a convenient measure of how well a particular experimental design handles variation is a statistical measure called coefficient of variation (CV). The CV measures variation that cannot be assigned to the treatments, and is expressed as a percent of the overall average plot value. Our research was designed to determine the plot size that minimizes CV.

Figure 1 shows how different plot lengths affected CVs of grain yield in fields sampled in Washington, Idaho, and Oregon. In 1991 four side-by-side combine header-width strips were harvested in 250-foot increments from uniform areas of six grain fields. A CV of 6 percent or less is excellent for yield data in most situations. Acceptable CVs were obtained with plot lengths from 250 to 1,500 feet at most sites. Plot lengths of 250 and 500 feet produced CVs of less than 9 percent at half the

Figure 1. Coefficient of Variation (CV) in Relation to the Length of Combine Header-Width Plot Harvests.



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FARMER HOPES TO SHOW CRP IMPROVEMENTS PAY

BY NANCY MATHESON, SUSTAINABLE AGRICULTURE PROJECT COORDINATOR FOR THE ALTERNATIVE ENERGY RESOURCES ORGANIZATION, BASED IN HELENA, MONT.

As many as 2.7 million acres of grassland in Montana might be plowed up beginning in 1995, and once cultivated, this particular land becomes highly erodible. That's why the land was taken out of cultivated crop production in the first place through the federal Conservation Reserve Program (CRP). The program was designed to protect the most erodible U.S. cropland by getting it out of cultivated crop production and under soil-holding cover.

The CRP program, which began seven years ago, pays farmers and ranchers annually on a per-acre basis to protect the land with grass and other permanent vegetation. The CRP contracts between producers and the federal government last 10 years, with the first ones signed in 1986 and more added since then. What will farmers and ranchers do with their CRP land when their contracts expire and the incentive payments end?

Broadview, Mont., area farmer Les Auer hopes they won't plow it up. He's working to find ways to make grazing the permanent vegetation financially competitive with small grains production. For that to happen, the forage production on that land has to increase.

Auer started a five- to seven-year research program on his own CRP land in 1991, with the help of a grant through the Alternative Energy Resources Organization, a Montana-based grassroots organization that encourages sustainable agriculture. Technical assistance was provided by the local county agent, district conservationist and the nearby Southern Ag Research Center at Huntley. The Broadview Marketing Club, a group of neighboring producers, is participating, as well.

The first and biggest hurdle Auer had to clear was winning permission from the federal agency that administers the CRP, the Agricultural Stabilization and Conservation Service (ASCS), to experiment on a small portion of his CRP land. The program usually prohibits haying, grazing and field operations on CRP, but Auer convinced officials to let him test a variety of practices designed to enhance the forage production of his grass — a mixture of western wheatgrass (58 percent), intermediate wheatgrass (25 percent), and slender wheatgrass, a fast growing filler (17 percent).

LES AUER IS CONDUCTING ON-FARM TESTING TO SEE IF GRAZING THE PERMANENT VEGETATION ON CRP LAND CAN BE FINANCIALLY COMPETITIVE WITH SMALL GRAINS PRODUCTION.

Auer is testing 10 treatments, unreplicated, in strips across 2 1/2 acres:

√ Fall chisel plowing 4" deep;

√ Fall discing 3"deep;

√ Spring broadcast overseeding of alfalfa with high-speed spiking;

√ Summer mowing 4" high;

√ Control strip, no treatment;

√ Spring broadcast overseeding of a bunch type alfalfa;

√ Spring broadcast overseeding of a rhizomatous alfalfa;

√ Spring broadcast overseeding of yellow sweet clover;

√ Spring application of glyphosate herbicide (Roundup); and ...

√ Fall application of glyphosate herbicide (Roundup).

Traveling across all 10 plots, Auer applied the equivalent of 50 pounds per acre nitrogen fertilizer to half of each plot, so he has a fertilized and unfertilized comparison for each treatment. He performed all treatments in 1991, and will not repeat them for the remaining six years of the experiment. At the peak of the growing season each year, research center staff will clip each plot and dry and weigh the green matter to determine the tons per acre of forage produced on both the fertilized and unfertilized halves. The results will then be compared to see which treat-ments produce the most forage over time.

It's too early to judge yet which treatments are most effective. In 1991, the first year of the experiment, the benefit of the nitrogen fertilizer was evident on most plots. In 1992, Auer raised excellent stands of clover and alfalfa he broadcast over the grass the previous year.

Auer's experiment with forage production on CRP is one of only three or four such experiments in the U.S. Others are looking at grazing management techniques for enhancing forage production.

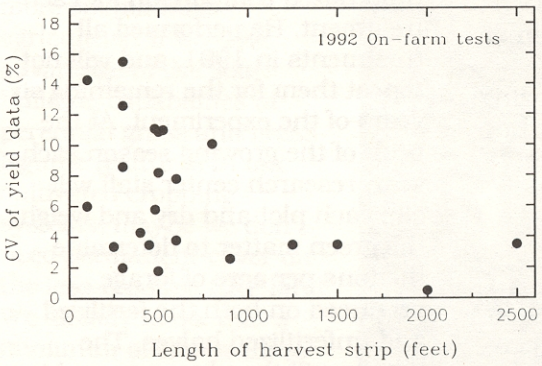
For more information, call AERO at (406) 443-7272 in Helena, Mont. ❐

TESTING, FROM PAGE 2

sites and greater than 9 percent at the other half in 1991. At sites where short plots gave a high CV, lengthening the plots to 1,000 feet reduced it to more acceptable levels. Similar results were obtained in 1992. There is no indication that a plot can be too long, assuming the treatments are compared side-by-side. I have seen excellent results from plots longer than 2,000 feet.

CVs from yield data of 23 on-farm tests done by growers in 1992 are graphed against length of the harvest strips in Figure 2. Most of the tests had three or four replications. There is a trend toward lower CVs with longer plot length, although many sites had excellent CVs with short plots. This agrees well with the uniform plot results, and confirms that on-farm testing can be a valuable research tool.

FIGURE 2. COEFFICIENT OF VARIATION (CV) OBTAINED IN 23 ON-FARM TESTS PERFORMED BY GROWERS IN OREGON, WASHINGTON AND IDAHO, SHOWN IN RELATION TO THE LENGTH OF PLOT HARVEST.



Researchers use statistical methods to find out if differences measured between plots (e.g., yield) are great enough to conclude that the differences were caused by the treatments, rather than by normal, random variation between plots. The Least Significant Difference (LSD) is a statistical measure of how much the treatment averages have to differ before we can have confidence (at a chosen level) that the treatments did produce different yields. At a 5 percent chance of a wrong conclusion, we had LSDs in the range of 1.2 to 6.6 bushels per acre for the 8 sites. This means that at the best site, we could be 95 percent sure that if the average yield of the two treatments differed by more than 1.2 bushels per acre, it was caused by the treatments. At the most variable site, the difference between treatments would have to be greater than 6.6 bushels per acre before we would have 95 percent confidence that the difference was due to the treatments.

A 5 percent chance of a wrong conclusion is the confidence level most widely accepted by scientists as an acceptable risk level. We can arbitrarily reduce the confidence level if we feel that the risk of being wrong is not serious. For example, if the test is comparing two or three wheat varieties for yield, we may be willing to choose what appears to be the top yielding variety even if there is a 20 percent chance that its yield potential is actually not superior to the other varieties. The LSD decreases to about half at this lower confidence level. The range of LSDs becomes 0.6 to 3.4 bushels per acre, or 2 to 8 percent of the yield.

Our on-farm testing results have been encouraging. Short plots of about 300 feet often produce good results, but where possible, longer plots should be used. The tests should be able to detect yield differences between treatments of 5 to 10 bushels per acre or less, but rarely less than 2 bushels per acre in a single year.

TABLE 1

A comparison of seedbed preparation for winter wheat showed that reduced cultivation left more lentil residue on the surface, but did not reduce wheat yields. The extra residue is critical for meeting SCS compliance guidelines (Culdesac, Idaho, 19" Mean Annual Precipitation (MAP)).

Three farmers compared their recommended herbicide rates with a significantly reduced rate on winter wheat, and obtained good weed control with both. Yields were variable, but statistical guidelines indicate that overall, yields were not different. More testing is necessary (Culdesac, Reubens, and Gifford, Idaho, 20-23" MAP).

Conventional cultivate and plant, Haybuster no-till, and chisel no-till planters were compared for seeding winter wheat on lentil ground. Yields on the chisel planted plots were 10 bushels lower than the other two, but it is believed that this was not caused by the planter. The chisel planting was performed two days after the other plantings, and the surface soil was frozen. The cause

MORE TABLE, PAGE 5

Farmers can get answers to their production questions or test new ideas with confidence after learning the basics of designing an on-farm test. Most of the tests take a few hours of extra time during harvest. But what is learned over two or three years from a few acres devoted to on-farm testing could make a big difference in the future.

REFERENCE

Wuest, Stewart. 1992. *1992 Pacific Northwest On-Farm Test Results.* Department of Crop and Soil Sciences Technical Report 92-4, Washington State University, Pullman, WA. Order from Baird Miller, Department of Crop and Soil Sciences, Washington State University, Pullman WA, 99164-6420; (509-335-2915). ❐

WELCOME THE NATION'S NEWEST SAWG

WESTERN COALITION TACKLES SUSTAINABLE AG ISSUES

The Montana-based Alternative Energy Resources Organization (AERO) has launched a new sustainable agriculture organizing effort in the western U. S. and Canada. The new policy working group will work to reduce barriers to the creation and adoption of a more sustainable agriculture in the region.

The grassroots network will work on a broad range of rural community issues. Coalition members will include sustainable agriculture, environmental and farm worker interest groups from Montana, Idaho, Washington, Oregon, Colorado, New Mexico, Utah, Wyoming, Alberta, Saskatchewan and British Columbia. It will address a number of major issues:

- Marketing, including closing the distance between food production and consumption.
- Agricultural research, in support of farmers and ranchers shifting to more sustainable methods.
- Questions of who will own and work the land, and rural community vitality.
- Goal-setting and finding common ground to reduce divisions between different interests.
- The 1995 Farm Bill, creating a regional voice for the upcoming federal policy debate.

As the network evolves, it will expand its agenda, and establish a regional action plan on both policy and practical sustainable agriculture issues.

"This organizing effort is an important first step in unifying regional sustainable agriculture interests," said Zane Zell, a Shelby, Mont., farmer who chairs the AERO board. "People understand that if we want to help shape agricultural policy and rural communities we need to work together. This is also a chance to better understand our neighbors' progress and problems in sustainable agriculture."

The new western network will be the fourth sustainable agriculture working group (SAWG) in the U.S. However, due to the enormous size and agricultural diversity of the region, and the fact that Canadian organizations will be involved, the western working group will have a broader focus than the three older SAWGs, which focus on U.S. federal policy issues.

Zell added, "The western states and Canadian provinces have a unique geography in both landscape and climate. This unites us, but also sets us apart from SAWG groups in other regions of the country. AERO, which will lead the organizing effort, felt it was time to bring those interested in promoting sustainable farming methods together to work on issues that are mutually beneficial."

AERO also intends to attract non-farmers to the network. AERO is working closely with the Palouse-Clearwater Environmental Institute in Moscow, Idaho, to draw in a broader citizen constituency. Initial funding for AERO's organizing role is provided by the Jessie Smith Noyes Foundation.

AERO is beginning to recruit people from interested groups to sit on a steering commitee that will guide the formation of the new working group. For more information, call Paul Reichert at AERO at (406) 443-7272. ❐

TABLE, FROM PAGE 4

of the yield reduction is not known, and the comparison is being repeated (Fairfield, Wash., 23" MAP).

Chiseling to roughen a hard seedbed before no-till planting winter wheat reduced erosion without any effect on yield (Fairfield, Wash., 23" MAP).

Underseeding legumes in the spring barley of a winter wheat - spring barley - forage/green manure rotation did not affect barley yields. Several legumes are being compared for forage yield and green manure value (Harvard, Idaho, 26" MAP).

Chiseling standing stubble in the fall increased the amount of soil moisture measured in the spring (Davenport, Wash., 15" MAP).

Several growers south and west of Spokane tested a subsoiler/ reservoir tillage device called the Dammer Diker on winter wheat after planting. Where the device was not run strictly on the contour, water from outside the treated area was collected and transported through the chisel slot. Yield reduction due to plant disturbance by the subsoiling operation was slight, if any (Reardan, Creston, Davenport, Latah, Wash., 15-21" MAP).

Tests of boron fertilizer for spring canola showed no response, but moisture was probably the limiting factor (Pomeroy and Dayton, Wash., 22" MAP).

Biosolids (municipal sewage sludge) used in place of anhydrous ammonia produced equal wheat yields and test weights. No difference in heavy metal content of the grain was found (Mansfield, Wash., 10" MAP). ❐

CRP, FROM PAGE 1

Then what? Several issues are important to this discussion:

SOIL BENEFITS OF PERENNIAL COVER IN CROP ROTATION

So far, most of the CRP discussion and limited research have centered on ways to keep CRP land from being broken out again after the contracts expire, primarily by using it for livestock forage and pasture. But we also need to figure out ways to make annual cropping and crop-fallow more conserving of soil.

A combination of annual cropping with perennial forage and green manure crops in rotation may make the most sense and coincide with the evolution toward a more sustainable agriculture. If we take advantage of the soil-building capabilities of perennial grass and grass-legume mixtures in our cultivated cropping systems, maybe we don't need permanent cover on the less-erodible CRP land. We already know that a minimum of two or three years of perennial grass and/or legumes can increase soil organic matter levels and reduce soil erosion for several years after the perennial has been turned under.

Perhaps the CRP is too narrowly focused for the long haul. All cropland has the potential to become highly-erodible if it is degraded indefinitely. In fact, more than 25 percent of the topsoil in this region has eroded away since the advent of cultivated agriculture a century ago.

We don't want to let our best soil become the CRP land of the future. It makes sense to reap the benefits of grass and legumes over the whole farm, not just on highly-erodible land, so that every field on a given farm is rotated through a conserving period.

CATTLE INDUSTRY MIGHT BECOME MORE FORAGE-INTENSIVE

As producers adopt more sustainable cropping systems, we can expect to see more crop rotations that include forages. What will be the impact on traditional livestock producers? Some policy experts predict the U.S. cattle industry will actually become more forage-dependent and that the use of feedgrain concentrates will decline in response to dietary concerns, water quality and other environmental protection policies, coupled with the growing global demand for food. These changes are expected to create opportunities for wider profit margins in beef cattle systems that are more forage-intensive, and to increase the overall demand for forage.

SAVING SOIL WITHOUT CRP

How are we going to allow and encourage producers to take greater advantage of the benefits of soil-building as their CRP contracts expire? These are a few alternatives that need exploring:

- Require ASCS offices to educate farmers about the Integrated Farm Management Program option passed in the 1990 farm bill.

- Explore the growing of perennial cover for biomass, local energy production, or for wildlife enhancement to create fee-hunting opportunities and income. We need not limit ourselves to the use of perennial cover for livestock forage and pasture.

- Use acres currently in the CRP as sites for wind energy development, since most of these areas are windy by definition.

- Use soil-conserving perennial cover to produce the ingredients for some of the new cellulose-based building materials. Meadowboard, for example, is lighter and stronger than traditional dimensional lumber, which is becoming scarce.

The aforementioned issues reflect current and future directions and opportunities we can't ignore. But there are some immediate issues too.

CRP FUNDING PROPOSALS

The appropriation for new CRP enrollments in the 1992 federal budget was zero. This prompted a Midwest coalition of farm groups to propose a way for the Conservation Reserve Program to pay for new enrollments by freeing up money currently obligated to existing CRP contracts. They suggest giving farmers the option of ending

MORE CRP, PAGE 7

RESOURCES

(THE FOLLOWING LIST OF RESOURCES IS OFFERED AS A SERVICE TO SFQ READERS. THE MATERIALS INCLUDED ARE NOT NECESSARILY ENDORSED BY THE SFQ OR THE DRYLAND CEREAL/LEGUME PROJECT.)

VIDEOTAPES

Strategies for Sustainable Agriculture, Rooy Media, is a new video series that profiles the strides many farmers have made toward a more sustainable agriculture. Produced in association with the Rodale Institute and funded in part by the USDA's SARE program, the tapes document methods developed to lower or eliminate the use of pesticides and synthetic fertilizers. Each topic — "Field Crops," "Rotational Grazing," "Vegetables," "IPM for Vegetables and Small Fruits," "IPM for Apples" and "High Value Marketing" — is available for $29.95 postage paid, or order the entire series for $150 postage paid from Farm Videos, c/o Rooy Media, 7407 Hilltop Drive, Frederick, MD 21702.

The farming practices of Dick and Sharon Thompson are presented in a new video at Iowa State University. The Thompsons are nationally recognized for their low-input sustainable farming methods, including an outstanding weed control program that combines ridge-till and a series of other practices to achieve weed management in corn and soybeans without using herbicides. Herbicides are recommended only as rescue treatments. The video also covers the Thompsons' general approach to farming and their use of on-farm research on the use of cover crops in weed control.

The Thompson video costs $19.95 and is available from The Rodale Institute, 222 Main St., Emmaus, PA 18098. Proceedings from the sale of the video will be used to support the Thompsons' research and education efforts. Checks should be made out to The New Farm Library.

PUBLICATIONS

1992 Washington Tilth Directory: A Guide to Organic and Sustainable Growers, Food & Farm Suppliers and Resources. Deb Pfieffer-Wadkins, Washington Tilth, P.O. Box 10813, Bainbridge Island, WA 98110; (206) 842-5612.

Suppliers of Beneficial Organisms in North America, 1992 Edition, from the California EPA. Single copies free from Department of Pesticide Regulation, Environmental Monitoring and Pest Management Branch, Attn: Beneficial Organisms Booklet, 1220 N Street, P.O. Box 94281, Sacramento, CA 94271-0001; (916) 654-1141. This booklet lists 95 commercial suppliers of more than 126 organisms effective in biological pest control, indexed to match suppliers with the specific natural enemies they sell. It also includes an index of beneficial organisms with their scientific names and target pests. Microbials are not listed. ❐

CRP, FROM PAGE 6

contracts on less erodible land and using the savings to enroll more erodible land on a partial field basis. Enrolling partial fields would achieve a greater erosion reduction per acre per dollar spent.

Two questions must be answered about CRP in the West to determine if such a proposal makes sense here. Is the most erodible land in the West already enrolled? If not, and we have yet to include some of the worst land in the program, would partial field enrollment make sense given the type of erosion hazard and topography typical of the region?

A second proposal from the Midwest would allow farmers to hay and graze CRP acres prior to the end of the contracts in return for a phase-out of their payments.

OPPORTUNITIES FOR BEGINNING FARMERS?

The second issue of immediate concern has to do with how much CRP land will change hands when the contracts expire. Some farmers used the CRP to retire. Many sold their equipment and some even moved south. The owners of those farms will need to either sell or lease them once the CRP contracts expire. Is this an opportunity to help beginning farmers become established? As the average age of farmers continues to increase, the whole question of how we're going to replace those who retire becomes an ever more urgent problem. This may be a golden opportunity to bring in new farmers. ❐

CALENDAR

IF YOU ARE AWARE OF AN UPCOMING EVENT OF INTEREST TO SUSTAINABLE FARMING QUARTERLY READERS, PLEASE SEND THE INFORMATION TO SFQ, ALTERNTIVE ENERGY RESOURCES ORGANIZATION, 25 S. EWING, SUITE 214, HELENA, MT 59601 OR CALL THE EDITOR AT (406) 442-8396.

FEBRUARY

21-23: "Agricultural Research To Protect Water Quality," Soil and Water Conservation Society conference, Radisson South Hotel, Minneapolis, Minn. Contact SWCS, 7515 Northeast Ankeny Road, Ankeny, IA 50021-9764; (800) THE-SOIL.

MARCH

1: "Alternative Agriculture Policy: A Time To Choose," Institute for Alternative Agriculture conference, Washington, D.C. Contact IAA, 9200 Edmonston Road #117, Greenbelt, MD 20770; (301) 441-8777.

6-7: The 1993 Public Interest Science Conference, University of Oregon, Eugene. Emphasis will be on the role of science in the policy-making process. Among the speakers is Mary O'Brien of the University of Montana Environmental Studies Program, a former staff scientist for Environmental Law Alliance Worldwide. Contact Len Broberg, Dept. of Biology, University of Oregon, Eugene, OR 97403.

9-12: National Organic Standards Board meeting, Raleigh, N.C. NOSB, USDA/AMS/TMD, Room 2510 S., P.O. Box 96356, Washington, DC 20090-6456.

14-16: "The Next Generation of U.S. Agricultural Policy," Soil and Water Conservation Society meeting, Kansas City, MO. Contact SWCS, 7515 Ankeny, IA 50021-9764; (800) THE-SOIL.

JUNE

1-3: USDA Extension Service educational composting workshop for Extension workers. Contact Jim Bushnell, Sustainable Agriculture Initiative, USDA-ES, Room 3340 South Bldg., Washington, DC 20250-0900; (202) 447-4481.

JULY

14-15: Annual Conference, Leoopold Center for Sustainable Agriculture, 126 Soil Tilth Building, Iowa State University, Ames, IA 50011-3120; (515) 294-3711.

20-23: International Workshop on Sustainable Land Management for the 21st Century, University of Lethbridge, Lethbridge, Alberta, Canada. Conference Services, University of Lethbridge, 4401 University Drive, Lethbridge, Alberta, Canada, TiL 3M4. ❐

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