

# the Practical Farmer

Practical Farmers of Iowa newsletter

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Winter, 1989

## PFI Winter Meetings

The annual general membership meeting was held on December 14, in Ames. The event drew about 150 people, twice the number of the previous year's meeting. In the morning the crowd heard from Trelan Wilson, who is the Story County Roadside Biologist, as well as Dennis Keeney, director of the Leopold Center for Sustainable Agriculture. The afternoon was devoted to reports from the PFI on-farm cooperators. These presentations are covered in separate articles.

Each of the five PFI districts is holding at least one event this winter. In most cases these are organized in cooperation with the Extension Service or some other organization. Not only does this build bridges to those other groups, it offers the opportunity to reach people who may not know about Practical Farmers of Iowa.

### January 16, Coulter: North-Central district

Coulter Community Building

9:00 - 10:00 registration

10:00 welcome: Hal Bumgarner

10:15 Dr. Dennis Keeney will speak on the newly-formed Leopold Center for Sustainable Agriculture

11:00 Allyn Hagensick will review the results of 1988 PFI on-farm trials

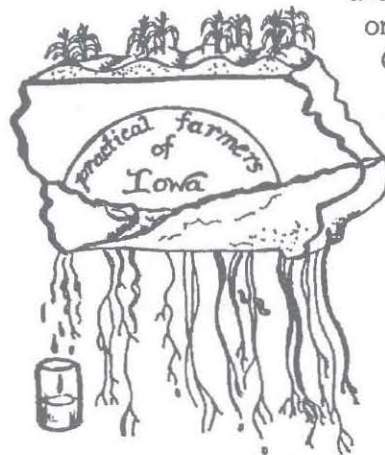
## Officers Elected — New PFI Pres!

At the annual winter membership meeting, two districts were up for elections. Mark Mays was re-elected board rep from the southeast district. Dick Thompson was re-elected from the north-central district. Al Hagensick, Harlan, has been appointed by the board to act as an associate member of the board of directors.

The board met after the general meeting and elected Ron Rosmann to be the new president of PFI. Mark Mays, of Wilton, was elected vice president. Tom Frantzen, New Hampton, will remain as secretary, and Dick Thompson, from Boone, will fill the newly created post of treasurer.

Ron and Maria Rosmann run a mixed crop and livestock farm near Harlan. They have three boys. When they are not farming, Ron and Maria are active in church and community organizations in Shelby County. A few miles from home, they are planting trees and shrubs on a small piece of ground with a pond.

Congratulations to Ron and the other PFI officers!



12:00 catered meal, \$3.75

1:00 Tom Frantzen, PFI director for northeast Ia., will talk about ridge-till and its social implications

2:00 Ray Stonecypher, "Low-input agriculture on a grain and livestock operation"

3:00 discussion, questions and coffee

### February 2, Harlan: Southwest district

Shelby County State Bank Building

Co-sponsors: PFI and Extension

Program title: "Profitability, Conservation, Practicality"



*Sharon and Sue busy at the registration table.*



*Waiting for the winter meeting to begin.*

9:00 registration

9:30 Vic Madsen and Ron Rosmann, "Cutting costs and saving resources"

10:15 Paul Walther, Audubon County Watershed Crop Mgt. Project, "Progress in water quality"

10:50 Dr. Dennis Keeney, Director, Leopold Center for Sustainable Agriculture, "Agricultural research dedicated to low-inputs, conservation and environmentally-sound practices"

11:20 Dr. Regis Voss, State Extension Soils Specialist, "The nitrate nitrogen test for more efficient utilization of N"

11:50 Merle Lawyer, Director, Shelby County SCS, "Update on the conservation provisions of the Food Security Act"

12:15 - 12:30 adjourn

### February 4, Davenport: Southeast district

Steeplegate Inn, on Hwy. 65, just off exit 295 of I-80

Co-sponsors: The Rodale Institute and PFI

Cost: \$12, which includes lunch and breaks.

Preregistration by Jan 27 is necessary for meal arrangements. Send your check to the Rodale Institute, 222 Main St., Emmaus, Pa., 18098, and specify the Davenport meeting. For more information, call (215)-967-5171.

8:30 - 9:00 registration

9:00 - 9:15 welcome: Ken McNamara, Rodale Institute

9:15 - 10:00 Dick and Sharon Thompson, Boone, Ia., "A practical approach to weed control"

10:00 - 10:30 Elaine Hall, ISU Extension, "Weed control in integrated farm management"

10:30 - 11:00 break

11:00 - 11:30 panel discussion, "How we reduced

herbicides" Mark Mays, Wilton, Ia., Terry Holsapple, Greenup, Ill.

11:30 - 12:00 Rhonda Janke, Rodale Research Center, "Reducing inputs in conservation tillage"

12:00 - 1:00 lunch

1:00 - 1:30 Ken McNamara, "Cover crops in cash-grain rotations"

1:30 - 2:30 panel discussion, "Our experience with cover crops" Terry Holsapple, Dick Thompson, Rick Exner (PFI/Extension Coordinator)

2:30 - 3:00 break

3:00 - 4:00 optional sessions "Hogs without antibiotics," Dick and Sharon Thompson "Raising and marketing high-value crops," Terry Holsapple "Intensive rotational grazing," Ken McNamara

### **February 15, Cresco: Northeast district**

Howard County Fairgrounds 9:00 AM - 3:30 PM

Co-sponsors: Howard County SCS and the Soil and Money Savers tillage club

PFI will have a booth at the annual tillage expo in Cresco. Included on the program will be Bill Hayes, a career SCS agronomist, now with Fleischer Mfg., who wrote the book, *Minimum Tillage Farming*.

### **March 2, Spencer: Northwest district**

Northgate Mall, on Hwy. 71, near the north edge of town Co-sponsors: SCS and PFI (PFI will also have a booth.)

9:30 opening remarks by Darrell Clark, Extension

9:40 Bob Graaf, PFI director, will speak on farming with reduced inputs

10:10 Ward Vorhees, from the Minnesota Experiment Station at Morris, will talk about soil compaction and its yield effects

10:40 Jim Ayen, state SCS office, on conservation provisions of the FSA

11:00 Randy Cox, a farmer-engineer from Van Wert, will discuss his specialized farming equipment

11:30 - 11:45 questions, discussion

1:00 Jim Kinsella, a BASF-sponsored speaker who does on-farm research on his no-till farm, in Illinois

1:45 Bob Jolly, ISU, will discuss current research on experiment station and outlying farms

2:15 Dave Hessman, on results of a tillage survey in Clay County

2:35 Rodney Jensen, Ida Grove, a long-time Buffalo ridge-tiller

3:05 questions, discussion

### **March 13, Ames: PFI Cooperators' Meeting**

Starlite Inn, just off the 13th St. exit of I-35

On-farm cooperators will get together to finalize their field trials for 1989. There will be presentations from Iowa State University researchers relating to the fertility and weed studies.

### **Dennis Keeney on the Leopold Center**

Dr. Dennis Keeney addressed the annual PFI meeting on "Farmer Involvement in the Leopold Center." Before he got down to the farmer involvement, though, he took the opportunity to describe in some detail the Center and its agenda. Since assuming the directorship in September, Dr. Keeney has been working to put the Center on an even keel and to develop its role in Iowa agriculture.

The Leopold Center, Keeney said, reflects what the conservationist Aldo Leopold called a "land ethic." This is a recognition that the community's "boundaries" include its soils, water and other natural resources. In other words, this resource base is a real and important part of the community's assets.



**Dr. Keeney (right) and Dan Looker of the Des Moines Register.**

The Leopold Center will reflect social and economic values consistent with this land ethic. It will deal with the issues of community and family stability, the competitiveness of Iowa agriculture, use of new technologies, and transfer of information. We also need to better understand what constitutes a sustainable farm and what encourages farmers to adopt sustainable practices, said Keeney.

Technical issues that the Leopold Center will address include: lowered fertilizer use; nitrogen credits; crop rotations; handling and utilization of wastes; tillage; integrated pest management; safer agricultural products; alternative crops; and alternative animal handling and grazing systems. Dr. Keeney believes the Center can influence the agricultural research agenda in the state by: providing visibility to research and extension programs in sustainable agriculture; coordinating funding efforts and attracting new funds; encouraging the formation of problem-solving, interdisciplinary teams; providing information to policy makers; and reaching out to groups not normally involved in agricultural issues.

Keeney and others involved in the Leopold Center envision a new model for the development of agricultural practices and technologies. The old model, he explained, is a "top-down" one, in which all the good ideas are supposed to originate with agricultural scientists in

individual disciplines. The Leopold Center will try to promote a more cooperative model. Problem-oriented "issue teams" composed of farmers, extensionists, and scientists from diverse disciplines will be brought together by the Leopold Center to develop solutions. On-farm testing will play a role beginning very early in the evaluation process.

Dennis Keeney suggested that another way to encourage farmer input would be an annual farmer-researcher institute coordinated through the Leopold Center. This would be an occasion for small groups of farmers and researchers to discuss new research approaches in specific areas. Keeney said he thinks it would be important for these farmers and scientists to maintain contact throughout the year. Funding for the institute would come from foundations and private industry.

The audience had some pertinent questions for Dr. Keeney at the close of his talk. One member wanted to know how the Leopold Center will divide its resources between the needs of large farms and those of small farms. Keeney replied that a balance is certainly needed but that he wanted to avoid having to define what a family farm is.

Another person asked about possible competition between the Iowa City medical school and the new rural health center at Iowa State. Keeney explained that this center has direct linkages with both Iowa City and Iowa Methodist Hospital, in Des Moines.

Someone in the audience pointed out that the Iowa Fertilizer and Chemical Dealers Association wants to be represented on the Leopold Center board of directors. Keeney acknowledged this, but said that the decision was a political one and therefore not his to make.

Finally, someone commented that the Leopold Center will be supported by a surcharge on fertilizers and pesticides, and that if the Center is successful in reducing the use of these inputs in Iowa, it may undercut its own funding. Dr. Keeney responded that if the Center were so successful that it actually "worked its way out of business," that wouldn't be so bad.

## Trelan Wilson: A Practical, IPM Approach to Roadside Weed Management

There is now three times more Canadian thistle in Story County's 5,000-some acres of roadsides than there was in 1969, when intensive 2,4-D spraying began. Trelan Wilson has the job of finding a different strategy for roadside weed control in Story County. He described that alternative approach at the annual winter PFI meeting.

Trelan started with the acknowledgement that he has learned quite a bit from Practical Farmers of Iowa. He has been particularly interested in PFI farmers' use of allelopathic weed control, nurse crops and cover crops, soil nutrient balance, and simple timing. He also appreciates that what you do to one kind of plant often indirectly affects other plants.

Trelan relates to ridge-till farming, too. He views the road ditch as a big ridge, in some ways!

When gravel roads were constructed, in the '20's and '30's, smooth brome grass was seeded in the ditches. The problem is that eventually these brome stands weaken, as with alfalfa or a field in which the same crop is planted continuously. Weeds like Canadian thistle and horsetail then start to move in.

The weed invasion is made worse when dirt gets into the ditch, either through erosion or because of field tillage too close to the road. The bare ground gives invading weeds a foothold. Bare ground also occurs through herbicide spills. Herbicide-resistant weeds like Canadian thistle are the first ones Mother Nature sends in to fill this kind of vacuum.

One alternative to 2,4-D is burning. Repeated burning weakens horsetail, but it only makes Canadian thistle more competitive against brome. Wilson has found that spot treatment of Roundup™ does kill Canadian thistle. Then, the question is what to plant in its place.

Story County's answer is to bring back the native vegetation that grew on this land originally. Some 300 species of prairie plants grew here at one time. Trelan hopes to utilize about 60 of the best adapted, most competitive types. A native called "cordgrass" (*Spartina pectinata*), for instance, can choke out Canadian thistle enough that it never blooms.

Trelan showed some beautiful slides of wild flowers. In a prairie planting, because there are many species growing together, any gaps that open up are quickly filled by other prairie plants. Wilson is also experimenting with different plant communities for different situations. He mentioned a sedge/cattail complex and an upland shrub association.

There are some tricks to getting prairie plants established in roadsides. They are slow growers and usually require mowing at first to keep down the competition. Mulching the banks is helpful. Many prairie species will not grow from bare soil. It is necessary to establish a "first wave" of prairie plants, then come back several times to seed other species into the established stand. A complex roadside prairie may take 15 years to achieve.

The "IPM" approach to roadside management is catching on. Besides Story County, Lee, Fayette, Cerro Gordo, Guthrie, Mitchell, and Blackhawk (the first county) have adopted similar programs. The state has hired Al Ehley, at the University of Northern Iowa, to get the word out about IPM roadside management. One benefit of the approach has already been realized in Story County; the annual herbicide bill has gone from \$21,000/year to \$900.

There were plenty of questions from the audience. One was about sources of prairie seeds adapted to local conditions. Wilson listed two:

Wild Flowers From Nature's Way, RR 1, Box 62,  
Woodburn, Ia., 50275 (515)-342-6246

Iowa Prairie Seed Company, 110 Middle Rd.,  
Muscatine, Ia., 52761 (319)-264-0562

There is also a national listing of native seed producers that may be purchased from:

the Soil Conservation Society of America, 7515 N.E.  
Ankeny Rd., Ankeny, Ia., 50021 (515)-289-2331

There is a shortage of good prairie grass seed. The grasses available are usually ornamental cultivars. You might try collecting your own seed from railroad rights-of-way or threatened areas. The county has established its own nursery.



**Trelan Wilson describes practical roadside weed management.**

Someone else wanted to know a practical method for establishing these plants. Wilson said you can seed them into bromegrass in the spring, then burn sometime between April 15 and May 5.

Another questioner wanted to know if prairie can beat wooly cupgrass and quackgrass. Wilson said almost any prairie will choke out cupgrass. Quackgrass can be a real problem, especially north of Story County. For quack, it is best to burn around April 15.

Before time ran out, there was a question about good species for waterways. Trelan Wilson said cordgrass is a good choice, however it is unpalatable to all but a very hungry horse.

## Cooperators Tell All

You may have attended field days, and you may have seen the rundown on cooperators' trials in the last newsletter. But you still need "the rest of the story." How did things turn out? The afternoon of the winter meeting was devoted to revealing just that.

**Nitrogen** Cooperators were divided into panels on the basis of their field trials. The first panel, on nitrogen, was scheduled to last a half hour. It took just ten minutes short of two hours for those cooperators to tell their story. Fortunately, that story is an easy one to summarize.

The average high rate of nitrogen in the trials was 119 lbs/acre. (The range was 30 to 190 lbs.) The average low rate was 58 lbs/acre. (Ranging from 0 to 130 lbs.) The highest rates tended to be in continuous corn, the lowest rates in corn following hay. In four of the 17 trials, some manure was also applied.

The difference between the average high and low rates was 61 lbs N per acre. One trial showed significantly greater yield at the higher rate, and one showed a significantly lower crop yield at the high rate (significant at the 95% confidence level). Averaged over all trials, there was no difference in corn yields between N rates.

That's a lot of nitrogen wasted. If the \$8.49/acre average savings realized by the lower rates were generalized across the whole state, they would amount to 91 million dollars. From an energy standpoint, the energy that went into making the wasted nitrogen would be equivalent, on a statewide basis, to roughly 122 million



**Discussion at a PFI field day.**

gallons of diesel fuel. These calculations were provided by PFI president Dick Thompson, who also furnished everyone with an excellent summary of 1988 cooperator results.

To be sure, 1988 was a dry year. Corn would be expected to respond better to nitrogen fertilizer in a year with more normal precipitation. That's where the new soil nitrate test would be so useful. The test is designed to tell a farmer how much additional nitrogen is needed as sidedress in that year. So far, evaluation of the soil nitrate test has been very encouraging. Before long, every county Extension office in Iowa will be equipped with a test kit.

**Weed Control** Weed control trials also showed little difference between ridge-till without herbicide and ridge-till with banded herbicide. Of 9 trials conducted, only the one on Tom and Marcia Hanks farm showed reduced yields where no herbicide was used.

In most cases the same amount of tillage was used in both the herbicide- and the no-herbicide treatments. The average cost saving in the corn trials was \$8.78 per acre, and the average saving in the soybean trials was \$3.06/acre. If these savings were applied to the total acres of corn and beans in the state, the savings would be \$118 million dollars.

**Manure** Three cooperators tackled the task of comparing manure and purchased fertilizer. In corn, one of three trials showed a yield gain with manure, one showed a loss. Two trials with soybeans showed no yield difference. Manure nutrient analysis and accurate application rates are necessary in this kind of a field test.

**Cover Crops** Two cooperators did demonstrations with a hairy vetch/oats cover crop. Although there was no significant effect on yield of the following crops, the cooperators had feared the ground cover might severely dry out the soil. More cover crop trials were seeded last fall. Cooperators will be concentrating on managing these ground covers to minimize soil moisture depletion. Two high-clearance tractors will be used to seed covers in the future. This will be much cheaper than aerial seeding.

**Starters** Two cooperators compared "food grade," or low-salt starter fertilizers to cheaper conventional starters. There were no significant yield differences, perhaps because the drought limited crop response to fertilizer.

**Potassium** A number of cooperators have questions about potassium. One problem is how to interpret the leaf tissue test. Where one farmer will settle the question by simply applying more fertilizer, another will run a field trial to find out if applying more K is worth it. A couple of trials in 1988 showed that it was not, at least in the forms applied. Look for more potassium work in 1989.

## Sustainable Agriculture Versus Small Farms?

—Jim Malia

Sustainable agriculture means different things to different people. These different meanings can lead to differing production systems and to differing research programs. Different meanings can also lead to conflict and competition for scarce resources.

One meaning of sustainable agriculture is provided by Robert Long, USDA Deputy Assistant Secretary. In his prepared testimony given last April before the Senate Subcommittee on Agricultural Research, he described sustainable or low-input agriculture as a "combination and sequence of farming practices or technologies integrated into a whole-farm managerial plan." These practices may include such things as integrated pest management, biological pest control, and legume-based crop rotations. Such methods are used instead of conventional technologies which depend on synthetic chemical pesticides, chemical fertilizers, and tillage methods that are environmentally destructive. The main impetus to change is because of the adverse side-effects of conventional technologies. These side-effects include such things as "soil erosion, possible health problems, pollution of surface and groundwater by pesticides and fertilizers, and pests rapidly developing resistance to pesticides." Other statements made by USDA officials and other agriculture research personnel at these hearings were in a similar vein. This meaning of sustainable agriculture focuses on the development of farming systems that minimize the use of purchased inputs and that minimize environmental hazards.

The assumption of this definition of sustainable agriculture seems to be that farming is to be carried on pretty much as it always has been — except that fewer chemical inputs will be used so that farming will be less

harmful to the environment. This definition considers farming to be an aggregation of environmentally benign production technologies. Research to support this vision of sustainable agriculture is focused on technologies that will achieve both production and environmental objectives.

For example, USDA research priorities for sustainable agriculture include studies of cropping systems, soil fertility, pest control, soil conservation, plant breeding, and irrigation. This side of sustainable agriculture is laudable and is certainly to be encouraged. But is it sufficient? Other advocates of an alternative agriculture would contend that this perspective gives insufficient attention to "farming as a way of life" and the attendant values of family and community that the notion connotes.

The deficiency of the production-oriented perspective to sustainable agriculture was brought to my attention recently at a meeting I attended in Kansas City. At the meeting were a number of federal and state level people who are involved with small-scale agriculture. The purpose of the meeting was to gather information and ideas toward building support to obtain additional research dollars for small-scale agriculture.

Participants in this meeting were highly critical of the sustainable agriculture movement. Their criticism was based on their perception that sustainable agriculture is nothing more than conventional agriculture with an environmental twist. It is their belief that the increased mechanization, specialization, and concentration of production which has characterized conventional agriculture irrevocably harms farm operations as much as the continued overuse of synthetic chemical inputs. They do not see that the adoption of alternative production technologies will significantly alter these negative impacts. Because some sustainable agriculturalists do not adequately address the social impact issues raised by production agriculture, individuals at this meeting were in strong disagreement with the sustainable agriculture movement. For these individuals, sustainable agriculture ought to mean something more than production. Because it doesn't, at least as they understand it, they are busy gathering resources to implement their own vision of what farming and the rural community should be.

I believe that the understanding of sustainable agriculture held by those at the Kansas City meeting is narrow and inaccurate. None the less, it is a perception

which is fueled by much of the publicity about sustainable agriculture. It is on the basis of these perceptions that this group, and others like them, are organizing to compete with sustainable agriculture for scarce research funds, a competition that is probably to the detriment of both camps.

A more reasonable approach, to my way of thinking, is an integrative approach that includes both production and social meanings for sustainable agriculture. It is gratifying to see that a more eclectic approach is being taken by the Leopold Center in its most recent call for research proposals. In addition to considering production research proposals, they are also calling for proposals which address the socio-economic impacts of current farming practices as well as the impacts of reduced input practices.

In conclusion, I would like to share an integrative perspective to sustainable agriculture offered by Gordon Douglass, an economist at Pomona College. He begins by describing three aspects to sustainability. One aspect is to focus on sustainability as the production of sufficient food supplies to feed the world. A second aspect describes sustainability as the stewardship of renewable resources. A final aspect of sustainability focuses on community and advocates an agricultural system that promotes a vital, coherent, rural culture that encourages the values of stewardship, self-reliance, humility, and holism.

Douglass integrates these differing perspectives by describing sustainable agricultural as a system which "meets reasonable future demands for food without imposing on society real increases in the social costs of production and without causing the distribution of opportunities or incomes within producing communities to worsen."

Conventional agriculture is production oriented, resource exploiting, and socially dehumanizing. Sustainable agriculture as described by Douglass provides a viable alternative to all aspects of conventional agriculture. This vision of agriculture can provide the basis for some hard thinking about what we want our rural society to be like. In Iowa, Practical Farmers of Iowa can be strong advocates for an expanded vision of what sustainable agriculture is all about.



## Rural Health and Safety Conference Held

— Mark Mays

This past September, I represented PFI at a conference in Des Moines sponsored by the National Coalition for Agricultural Safety and Health. This was the second of two conferences held to focus on the dangers farmers live and work with. These risks and health conditions that farmers and farm families are exposed to are only now receiving attention.

An earlier conference had been held in Iowa City. Its goal was to bring together technical experts from around the world to identify the areas that present the greatest health threat. After these general areas were outlined, working groups were set up to determine the specific categories that should receive emphasis.

The conference in Des Moines was then to take these areas and recommendations from the technical work groups and formulate policy proposals for state and national legislation. We participants were given the task of setting goals, establishing priorities, delegating responsible people and organizations, and identifying funding sources — all this in order to implement a plan to educate farmers and agribusiness on health and safety matters.

The overall objectives of the conference were:

- 1) to summarize current knowledge about providing a safe and healthy agricultural work environment and to encourage the safe use of agricultural chemicals;
- 2) to integrate the views of farmers, industry and public institutions into a process for recommending policy;
- 3) to identify research and service needs and policy issues for the following topics:
  - a. occupational health hazards in agriculture
  - b. environmental health strategies for agriculture
  - c. delivery of occupational health services to farms and ranches

- 4) to formulate policy strategies and implementation methods;
- 5) to target results of policy strategy discussions to key legislators and other policy makers.

PFI was again recognized as a leader in on-farm research. I received countless remarks from individuals on the real need for the information we provide. Many misconceptions became apparent. People who do not farm often have no conception of what we in agriculture really do. I felt that in participating in the conference, I had the opportunity to tell people what is really going on here on the farm, and they had the opportunity to hear it straight from a farmer. I did my best to educate them!

## A Field Day in Minnesota

— Rick Exner

Last August 23, my wife Sue and I went to a farm tour in southeast Minnesota. We could have attended the PFI southeast Iowa tour that day, but we were curious about the Minnesota event. It was co-sponsored by the Land Stewardship Project's Stewardship Farming Program and the Sustainable Farming Association of Southeast Minnesota.

About 120 people met in a shopping center parking lot in Rochester. There we boarded comfortable buses for the first of three farms on the tour. Along the way, LSP agronomist David Granatstein filled us in on the background of the farms and generally kept things lively.

This is dairy country, of course. The first farm we visited was a 240-acre operation run by two generations of the Miller family. These people had obviously been involved in conservation for a long time. The TV crews were kept busy with the contoured fields and the picture-perfect barn.

With the Stewardship Farming Program, the Millers are comparing the effects of spring-applied manure, winter-applied, and no manure on soil fertility and corn growth. They weren't finding major differences, and I couldn't help thinking that it had something to do with the way they had set up the experiment. About one-half the field got spring-applied, the other side of the field got winter-applied, and the draw down the middle received no



***Sustainable farming field day in southeast Minnesota.***

manure. There is just too much natural variation in any field to do an experiment in this way. Of course, practically speaking it would have been hard to convince the senior Miller that he should really be spreading in randomized strips — especially on a day when the temperature was below zero!

The next stop was the farm of Joe and Nancy Petit. They milk about 40 cows on their 300-acre spread. There are a number of conservation features on the farm, and the Petits work to limit nitrogen and weed control costs. Joe explained that they had at one time tried to farm organically, but that weed problems had forced them back into using herbicides.

The weed problem has a lot to do with all the tillage farmers in this area have to do because of their rotations. The soil gets all stirred up between crops, and many annual weeds love this. While row-crop farmers are using a minimum-till program like ridge-till to reduce or



***These drilled soybeans received \$25/acre of Command™ plus Lorox™. By late summer there had been enough rain to turn leaves white.***

eliminate herbicides, the folks in southeast Minnesota believe that has no application to their situation. What's needed, I think, is for one farmer there to take the lead and show that that it does.

The tour stopped for a catered noon meal in a beautiful little state park. After we ate, representatives of the sponsoring groups were introduced. We learned that the Stewardship Farming Program is roughly equivalent to PFI's on-farm cooperators. The Sustainable Farming Association of Southeast Minnesota is a larger group that formed because a greater number of farmers were interested in sustainable farming.

There was also a talk, by a Native American, on "American Indian Values Towards Land and Water." Then Doug Nopar of the LSP passed around clipboards to each picnic table of people. He directed us to work together for five minutes to come up with a list of the obstacles that farmers face in changing to a more sustainable system. Afterward someone from each table stood up and read out the list. That was a nice experience. It got everybody talking and gave everyone a chance to try out their favorite ideas.

In the afternoon the tour stopped at the farm of Everett and Rosemary Koenig. This is a 180-acre dairy farm. The Koenigs do without herbicide whenever they can. Delayed planting and timely cultivation are among their weed control strategies. Last summer they were trying some Sindelar corn (a cross between a hybrid and an open-pollinated variety). They were interested to see the yield and feed value of this corn under reduced-input conditions.

Several times during the day comments were made about magnesium. I heard magnesium blamed for everything from hard soil to foxtail infestations. This ties in with the belief that the soil's cation exchange capacity should contain a certain fixed ratio of nutrients. Some farmers are driving many extra miles for non-dolomite lime in an attempt to reduce their soil magnesium.

I have my own opinion about this, but I think it's important that these farmers find their own answers. To do that in a way that minimizes the guesswork, they need to do some good, randomized, replicated, on-farm trials. It isn't going to help the reputation of sustainable agriculture to have groups promoting expensive alternatives if they don't work.

These disagreements did not keep me from enjoying myself. Sue and I met really nice people, and we saw some beautiful farms that day. Sustainable farming seems to be something people relate to in Minnesota. In fact, the Land Stewardship Project is helping start another sustainable farming association in southwest and west-central Minnesota. We will try to keep in touch with their progress.

## References On Sustainable Agriculture

The references listed here have to do mainly with sustainable, low-input, regenerative agriculture; land stewardship; taking care of the soil and protecting the environment. These reading materials are part of the personal collection of Harold Wright, member of Practical Farmers of Iowa, and were displayed for browsing at the annual meeting of Practical Farmers of Iowa at Starlite Village, Ames, on December 14, 1988.

Editors' Note: Practical Farmers of Iowa is not promoting the following materials, nor does it necessarily endorse the ideas in them. We are providing this list as a service to our readers. This issue contains books. Next issue: magazines and other publications.

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## Changing Crop Base Acreage Systems to Encourage Sustainable Agricultural Practices

—Ken McNamara (Editors' Note: Ken works for the Rodale Institute and is a PFI member.)

**Introduction** Farmers and scientists alike have long recognized the value of rotations in crop production. Rotations have shown to be an effective means of: 1) keeping weed and pest populations in check, 2) diversifying farm labor and income, 3) enhancing yields and 4) if managed properly, controlling erosion. Proponents of sustainable agriculture hold that crop rotations are a key element in production systems that rely on few commercial inputs and place an emphasis on resource conservation and land stewardship. Despite the obvious value of this practice, fewer and fewer farmers rotate crops. Monocultures of continuous corn or corn-bean rotations have become the norm across millions of acres of the country.

There are a number of reasons why crop production has developed into this kind of system. To explore them all is beyond the scope of this paper. Suffice it to say that with the development of pesticide and machinery technology, along with an emphasis on using an industrial model of agriculture which looks primarily at short term profitability, practices such as rotations have been largely abandoned.

Another reason that many farmers no longer rotate crops is the government programs which essentially lock farmers into a base acreage. The programs are set up in such a way that farmers are paid an attractive (in comparison to the open market) support price for a crop in exchange for setting some land aside from crop production. The net effect is a disincentive for farmers to rotate. The purpose of this paper is to examine how that program is a deterrent to crop rotations (and thus sustainable agriculture), and how it can be changed to provide incentives for farmers to resume this practice.

**The Problem** This past year I have been involved with a number of workshops with farmers who are trying to move to sustainable systems and university ag researchers. In most of these workshops an agronomist would come before the group and discuss the results of some long-term rotation study as compared to continuous corn. In each case the agronomist would conclude with a discussion about how advantageous it is to rotate crops. The reasons would be the same as those listed in the first paragraph above. Next, an ag economist would put some expense and income figures on the same data. This presentation would inevitably conclude with a statement similar to the following: "Despite the obvious biological advantage of rotations, growing continuous corn with involvement in the government program is more profitable."

This is not to criticize the researchers. They are just collecting and reporting the data that the trials generate. It does point out however, that there is a powerful economic incentive for farmers to sign up for these programs and comply with their provisions, even if it means cropping in such a way that is not always best for the needs of the soil.

To discuss all the aspects of the government programs would also be too lengthy for the purpose of this paper. Basically however, the base program is set up so that if farmers do not plant all their base acres each

year, those acres are reduced and farmers lose some potential payments in subsequent years. Reluctant to take that chance, the majority of them plant as many acres as possible of the program crops. Farmers may hate dealing with the extra hassles of complying with these programs, but they realize they provide more income security than does the open market. Although many of the details are left out of this short description, this is essentially the reason that the program is a barrier to crop rotations.

**Changes** Because of the huge cost of these programs, changes have been proposed by many groups. These range anywhere from dismantling them and putting all crops on an open market, to strict mandatory supply controls. Politically, both of these options would be difficult to implement. The former would cause too much upheaval in rural economies and the latter meets with both consumer and farmer resistance.

Another option which I believe is more feasible, is to include small grains (oats, wheat, rye, barley, and triticale) into the program in such a way that they would be just as profitable as corn for farmers. Exactly how this would be done is something that would be worked out by economists. It may call for a partial decoupling of corn with small grains grown as a substitute. The important point is to provide incentives for growers to include small grains into their cropping patterns with the goal of reaching one third of the land planted to these crops at any one time. This change would generate big results for sustainable ag practices. The key questions are whether farmers would grow these crops even if they were profitable, and what would be the cost to the government. Following are some aspects of this plan that I believe make it possible:

1-Small grains are crops that conventional farmers will grow. This is an important consideration. Small grains have markets, lend themselves to mechanization, and fit into livestock programs. Also, since they spread labor requirements throughout the season and do not require large purchases of additional equipment, these grains are especially attractive to farmers.

2-Payments to farmers would stay the same and could possibly be reduced. By growing small grains on approximately a third of the grain acres, the supply of corn and beans should drop and prices rise. This would reduce government payments for those crops and offset any additional costs for the small grain support. Again,

economists would have to determine the details of this aspect of the program and make changes in things like setaside requirements, payment arrangements, support levels etc. to keep costs in line.

3-Including small grains would not call for more levels of government bureaucracy. This is important in light of today's political and financial climate. The changes called for here are not so massive that present SCS and ASCS staff could not handle them.

4-Small grains lend themselves well to sustainable ag practices for a number of reasons. These include:

- a. They have fewer insect pests and compete with weeds better than row crops, thus requiring fewer pesticides.
- b. Small grains require less fertilizer inputs.
- c. Winter grains, planted in the fall, can act as a "sponge" for residual nitrogen that was used on the previous crop, preventing the leaching of that N into groundwater.
- d. Winter grains can provide ground cover in the spring and fall when soils are particularly susceptible to erosion.
- e. Small grains allow for overseeding. This point, I believe, is the most important benefit of the whole proposal and is the main reason it deserves serious consideration. Thus, the concept needs some elaboration. Throughout the vast grain growing area of the Midwest (as well as other areas of the country) the number of farmers who raise livestock has dwindled. As a result, the use of rotations with forages has also declined. Sustainable agricultural advocates often say that it is impossible to have a sustainable system without animals. I disagree. I believe that the land needs forages, not necessarily animals. It is unrealistic however, for farmers who have no livestock, to include forages grown for the conventional reasons, i.e. hay and pastures, in their rotations. The investments in machinery and labor, the need for raising animals nationwide, and lost opportunity costs of raising grain are all factors which make this unlikely. What is needed are systems that allow farmers to "fit" forages into cash grain rotations in such a way that it can be done without too much cost, risk or labor. In the continuous corn or corn-soybean rotations that we now have, it is very difficult. Small grains, because they are

taken off in mid- to late summer, are ideal crops for establishing an overseeded legume cover crop. These legumes, which provide fall and spring soil protection, supply N to the subsequent crop, add organic matter to the soil when incorporated, and which, when widely adapted, will be a new cash crop (seed) for farmers, are essential for a sustainable agriculture. Small grains are the most effective way of allowing farmers to use them to their best advantage.

For this change in the base acreage system to work, one has to assume that farmers would rotate into small grains without being forced. I believe that the vast majority of farmers would do so. There is a growing awareness among farmers that they must make changes in the way they farm or government regulations will do it for them. Also, they are realizing that when it comes to dealing with the environmental, health and financial problems caused by conventional ag practices, they and their families are the first to feel the effects. They must drink the contaminated water, be exposed to the pesticides and pay for all the inputs. A growing awareness that changes are needed has permeated the farm community. Small financial incentives (e.g. costsharing on legume seed) may also be needed initially to get the program going.

Beyond the negative aspects however, I believe that most farmers will do what is right for the land as long as they are not put in financial straits for doing so. By appealing to their sense of soil stewardship farmers will do their part to help bring about a better environment. They realize that in the long run, it is to their own best interests.

**Conclusion** There is no doubt that if sustainable agricultural practices are to take hold across millions of acres of U.S. farmland, changes are needed in the government programs. The reality of the current political and financial situation however, makes sweeping changes unlikely. Needed are a few changes that will not significantly add to the cost or the complexity of existing programs. Making small grains and cover crops a viable alternative to continuously grown row crops could be a solution. Although this idea is examined for this paper in a context of corn-soybean rotations with adequate rainfall, the concept could be applied to other row crops under other climatic conditions. Rotating with small grains lends itself to sustainable ag practices (especially overseeding legumes), helps limit oversupplies of crops, and is an acceptable alternative for farmers. It merits a serious examination by agricultural officials.

## From the Coordinator's Desk

— Rick Exner

Today, January 15, is my first day of work as the PFI/Extension Sustainable Agriculture On-Farm Trials Coordinator. Appropriately enough, it's a Sunday, and here I am picking away at the keyboard. This winter has turned out to be a regular tornado of activity. I'd like to use this column to keep you readers informed about what I and others at ISU are up to. This time, I want to make some acknowledgements.

Ever wonder how this newsletter comes together? It is a collective effort. I go around and collect the efforts that everyone else has made. There is a dedicated group of PFI members here in the Ames area that fold, staple, stamp, and write articles for *the Practical Farmer*. Ricki Voland, in particular, is a mainstay, and he has been since we served on the PFI board of directors four years ago. Others include Aaron Gabriel, Tom Gust, Jim Malia, and Harold Wright. Unfortunately, everyone but Harold will someday graduate and leave this place!

This newsletter really belongs to the members, and I truly appreciate the contribution of articles by PFI directors and general members. This month, for example, we'll begin an extensive listing of publications on sustainable agriculture, courtesy of Harold Wright. Most of you have seen some of Harold's library at past PFI meetings.

You must have also noticed a change in *the Practical Farmer* over the past year. It's more readable! We have Kurt James to thank for this. Kurt is a writer who does desktop publishing for the university. He first volunteered his after-hours services to us last spring, and the newsletter has never been the same.

## Omaha Sustainable Agriculture Conference

The Soil and Water Conservation Society in cooperation with the U.S. Department of Agriculture and the U.S. Environmental Protection Agency is sponsoring a conference "The Promise of Low-Input Agriculture: A Search for Sustainability & Profitability" on March 8-10, 1989, at the Holiday Inn Central, Omaha, Nebraska. Speakers include Chuck Francis (University of Nebraska), Robert Rodale (Rodale Institute), Jim Bender (Nebraska)



**Cooperators Vic Madsen, Ron Rosmann, and Ted and Donna Bauer get ready to head for home.**

and three other farmers from around the country, Dennis R. Keeney (Leopold Center for Sustainable Agriculture, Iowa State University), Mike Duffy (Iowa State University), and several others. The program will also include some discussions involving Garth Youngberg (Institute for Alternative Agriculture) and others.

Sponsors include such diverse groups as the Rodale Institute, the National Wildlife Federation, the Institute for Alternative Agriculture, the American Society of Agronomy, and the American Farmland Trust. Participants come from all over the country including Colorado, California, North Dakota, North Carolina, and Washington, D.C., in addition to those previously mentioned. Topics range from "Mainstreaming Low-input Agriculture," and "State of Low-input Agricultural Research," to "Impediments to Adoption," "Low-input Agriculture Works: A Farmer Panel," and "Social and Economic Impacts."

The deadline both for early registration and for special conference rates at the hotel is February 15. For more information write or call:

Soil and Water Conservation Society, 7515 Northeast Ankeny Road, Ankeny, IA 50021-9764 (515) 289-2331

## News and Notes

Those of you interested in organic standards for food should know that Iowans for Organic Standards has no plans for this state legislative session to address the issue of standards for organic or natural meats.

## CORRESPONDENCE

Correspondence to the PFI directors' addresses is always welcome.

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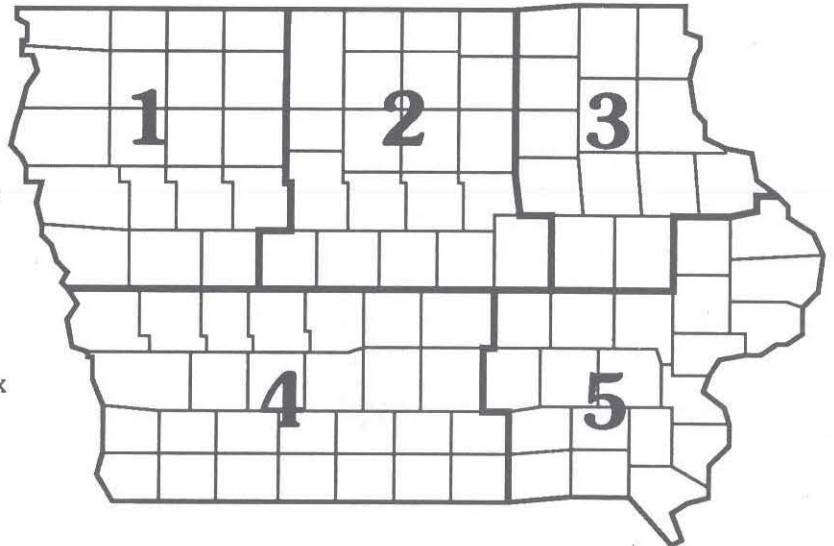
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District 5 (Southeast) Mark Mays, RR 2, Box 45, Wilton, 52778. 319-732-2040.

Coordinator: Rick Exner, Room 2401, Agronomy Hall, Iowa State University, Ames, Iowa 50011. 515-294-1923.

## PRACTICAL FARMERS OF IOWA MEMBERSHIP DISTRICTS



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## Practical Farmers of Iowa

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