the Practical Farmer

Practical Farmers of Iowa Newsletter

Vol. 6, #2
Summer 1991

NATIONAL ENVIRONMENTAL ACHIEVEMENT AWARD TO PRACTICAL FARMERS OF IOWA

Take a bow, PFI members! In June, Practical Farmers of Iowa received national recognition for the on-farm demonstration of sustainable agricultural practices achieved through a public-private partnership with Iowa State University Extension and the Iowa Department of Agriculture and Land Stewardship. PFI was one of 20 organizations and agencies, both private and public, chosen by *Renew America*, coordinator of the National Environmental Awards Council. The Council is a partnership of 28 national environmental organizations that includes such institutions as the American Farmland Trust, the Izaak Walton League, the Institute for Local Self-Reliance, the Union of Concerned Scientists, and the Center for Science in the Public Interest.

Accepting the award in Washington, D.C., were PFI cooperator Ron Rosmann and Extension/PFI On-farm Trials Coordinator Rick Exner. Rosmann and his wife Maria, who farm near Harlan, had taken the initiative to apply for the award on behalf of PFI.

The on-farm trial design used by PFI cooperators has been widely recognized as one of the most reliable and practical. Tom Frantzen, PFI president, commented on the

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Ron Rosmann accepted the award trophy from actor Eddie Albert and Claudine Schneider, Chair of *Renew America*.

award: "The PFI on-farm trials are a good problem-solving tool for farmers, they are excellent demonstrations, and they make it easier for agricultural scientists to do research on working farms. ISU and the Iowa Department of Agriculture deserve credit for recognizing the potential here." Director of Agriculture for Iowa State University Extension, Dr. Jerry DeWitt, added: "This partnership is the first of its kind in the nation and a model for other states. The close working relationship serves both farmers and Iowa State University."

While in Washington, D.C., Rosmann and Exner attended the *Renew America* "Searching for Success" conference, a 2½-day meeting that attempted to draft recommendations and formulas for successful grassroots programs in a wide variety of areas. These proceedings will be published under the title: *The Emerging Environmental Consensus*.

Organizations at the conference represented an impressive range of efforts. Other award winning projects included: environmental shopping tours (Newcastle, New York, League of Women Voters), institutional environmental education (State of Wisconsin), salmon habitat restoration (California Conservation Corps), forest protection and urban forestry (Ouachita Watch League, from the lower Midwest), ethanol production (Vienna, Illinois, Correctional Center), and a "green workplace" (New Hampshire Hospital). Iowa furnished another winning project beside PFI. The Osage Municipal Utility Company was recognized for its program of electrical demand-side reduction through energy efficiency. These programs are among 1,200 listed in the *Environmental Success Index*, a directory of successful environmental programs published by *Renew America*.

NOW SHOWING -- PFI FIELD DAYS

1991 is proving once again that the first Iowa Lottery was farming. Everyone farming has at least something to feel badly about this summer. Another truism is that we never see a normal month, let alone year. Winds whipped across the northern two tiers of counties, corn borers and potato leaf hoppers are doing just fine, and rust overtook the oats. Actually, there are some good oat yields here and there in the state. And where it happened to rain, corn fields looked good in early August.

In the midst of it all, PFI cooperators around the state are carrying out on-farm trials and holding field days. If you haven't been to a field day, you can't say you've seen the summer of '91!

The Institute for Agricultural Medicine, at the University of Iowa, has been monitoring farmers this spring for exposure to pesticides. A display explaining the pesticide monitoring project was present at the farm of Tom and Irene Frantzen for their field day August 6, and it will also visit the field days of Jeff and Gayle Olson, on Sept. 2, and Mark and Rita Mays, Sept. 3.

Linda Oglivie, of the Institute of Agricultural Medicine and Health, and PFI President Tom Frantzen demonstrate the exposure-monitoring equipment Frantzen wore while working with pesticides this spring.

The monitoring project, which is funded through the National Cancer Institute, is using a mobile testing laboratory called the "VIPER van" (Video Imaging Pesticide Exposure Research). Both the display and the van are scheduled to visit the Dick and Sharon Thompson farm for the September 5-6 field day.

Other farm field days of note:

Sept. 8: Bill Welsh, RR 2, Lansing, IA, 52151. (319) 535-7318. Sponsored by Iowa Citizens for Community Improvement.

Sept. 10: Cyril Venner, RR, Box 19, Arcadia, IA, 51430. (712) 673-2557. Sponsored by Iowa Citizens for Community Improvement.

EDUCATION PROGRAM RECEIVES BOOST

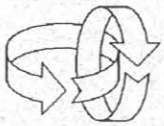
Readers of *the Practical Farmer* learned this spring that PFI is initiating an education project in sustainable agriculture. First-year funding for that project was received from the Educational Foundation of America. Now this program has gained additional support. In June, PFI was notified of funding under ACE, "Agriculture in Concert with the Environment," a division within the federal LISA ("Low-Input Sustainable Agriculture") Program.

ACE will bolster the education program by providing project money for some specific activities. Many of these will have the goal of bringing students and others into direct contact with farms and farmers using sustainable practices. A mentoring program will be established to connect interested young people with PFI members and district soil commissioners for the purpose of carrying out special learning projects. PFI members will be invited to volunteer their time and experience for the mentoring effort later in the year.

"Youth field days" is another activity that will receive support from the ACE project. These group events will increase understanding of sustainable agriculture among 4-H Club members and other school children by bringing them to the farms of PFI members and others. The project funding will also establish demonstrations of sustainable agricultural practices at the Iowa 4-H Education and Natural Resources Center, near Boone.

Over two years, the ACE funding will amount to $38,550. This will be a significant boost to the PFI education program, and it has arrived at the very best time to get the program off to a good start. More than 20 applications were received for Extension/PFI Education Coordinator. The position is scheduled to be filled in September.

EXPERIENCES WITH RECYCLING IN THE HOME



-- Tom Frantzen, Alta Vista

In September 1989, Governor Branstad formed a citizen's committee and directed it to formulate an agenda for environmental issues for the 1990s. I was asked to serve on the agricultural subcommittee of this group. In the fall of that year, as this agenda was formulated, I traveled over 1,700 miles to attend the meetings. In December of 1989, when the final draft of the environmental agenda was issued, the citizen's committee was disbanded. I returned home with a better understanding of environmental problems, and a changed attitude. The lengthy discussions on solid waste disposal really opened my eyes.

I announced to my family that evening, that our house was going on a solid waste reduction plan. I really didn't *have* a plan. We were going to start recycling. All of my life, any junk or waste was either burned or buried. I hated the job of burning the trash. Digging holes was expensive. With few exceptions, we discontinued both of these practices.

We began stockpiling paper waste. The daily newspaper, weekly papers, household paper waste, and farm feedbags quickly grew into a large pile. What could we do with this growing mountain? I spotted an old FOX forage harvester in a farm equipment dealer's lot. I bought it, with both heads included, for several hundred dollars. Removing the corn head exposed a feeding table. I added sheet metal to form sides shaped like a

Feedbags, newspaper, and other nonglossy paper go through the forage harvester and into the livestock stalls.

hopper. A cable attached to the feeder rolls clutch was mounted near the table. This safety feature enabled the operator to stop the feeding conveyor in event of an accident.

Would this forage harvester grind paper? On a bright Saturday afternoon in December, we found out. Irene and our three children loaded stockpiled paper waste into a small cart towed by our 4-wheel ATV. I attached the forage harvester to a tractor, pulled it alongside the shed that houses our gestating sows, and hooked a plastic pipe connecting the blower chute to a small hole cut in the hog shed. The harvester easily ground a month's supply of paper waste and blew it into their nest. The sows seemed to enjoy the shredded paper! This is now a monthly event involving the entire family. Instead of ashes, smoke, and a mess to clean up from burning, our paper waste is now an asset. I do not intend to return to the old days of burning.

The initial recycling success led to more activities. Soon we segregated plastics from our waste stream. Containers stamped "#2," like milk jugs, were placed in separate bags. #2 plastic is the most common plastic we use in our home. All other plastics -- a smaller amount -- were also separated. In November, 1990, I delivered a year's supply of recyclable plastic to Hammer's Recycling in Iowa Falls. This amount fit into the rear of our midsize station wagon, and Iowa Falls was on my way as I traveled to Des Moines. Hammer's paid me for the plastics, but the real reward came in knowing that we could recycle plastic easily. Now we even run the #2 plastics through the forage harvester to reduce bulk volume. Hammer's provides large cardboard boxes for shipping chipped plastic.

We remove the labels and flatten steel cans in our basement. The flat cans are boxed and will be dropped off at a recycling center in Mason City. Clear glass containers have the paper labels peeled off. Then we break the glass inside of a heavy burlap bag and pour the glass into plastic pails. Clear, broken glass is accepted at the Mason City recycling center, too.

Last December marked the first year of recycling household solid waste. The volume of our waste now going to the county sanitary landfill has been reduced by 90 percent. I estimate that we have recycled the following amounts of material in a years time:

- 70 lbs paper per month × 12 months = 840 lbs paper, used for swine bedding
- 35 lbs #2 clear plastic sent to Hammer's
- 6 lbs mixed colored plastics sent to Hammer's
- 90 lbs flattened steel cans to recycling center
- 65 lbs crushed clear glass to recycling center

A small amount of waste is sent to our landfill. Glossy magazines are a part of this. Our goal is to reduce this amount to zero. Seed corn and insecticide bags were the only paper waste burned in 1990. Our entire family feels good about these activities. We believe that household recycling should be part of a modern family's life-style.

NOTES AND NOTICES

♫ Sustainable Farming Research Results Available

Can use of the rotary hoe reduce the need of costly herbicides? Will turkey manure outlast the conventional fertility prescription for corn or soybeans? How can Conservation Reserve Program Acres be improved with native plants to prepare for grazing after the 10-year enrollment period?

Sustainable Farming Association (SFA) members in western Minnesota have sought the answers to these and other questions related to each individual farm's transition to a more economically and environmentally sustainable agricultural production system. The SFA enables farmers to work together locally to address their own information and researching needs on sustainable agriculture. Because producers set their own agendas, these field trials are quite varied.

The SFA now offers the published results of 1990 on-farm demonstration and research projects undertaken by 20 farmers. The 31 projects were sited in 11 western Minnesota counties. Topics include non-chemical weed control, varying rates and types of fertilizers, organic crop production, alternative crops and controlled grazing. Contact the SFA at (612) 269-6476 or Box 367, Montevideo, MN, 56265, for this $7.00, 1990 research report.

Do It Yourself with Plans and Handbooks

Are you planning a new facility on your farm? Maybe you're just looking at a problem and considering alternatives. You should know about Midwest Plan Service (MWPS). MWPS is an association of the USDA and agricultural engineers from the upper Midwest. MWPS publishes an annual catalog of inexpensive plans, handbooks, ag engineers' digests, technical resources, and publications from NRAES (Northeast Region Ag Engineering Services). Most of these works cost less than $10.

Handbooks and NRAES publications discuss general engineering considerations. Titles include, for example: *Livestock Waste Facilities Handbook*, *Solar Livestock Housing Handbook*, *Silage and Hay Preservation*, *Farm Accident Rescue*, *Farm and Home Concrete Handbook*, and *Natural Ventilating Systems for Livestock Housing*. Plans get down to specifics, for instance: *56'×88' Machine Shed*, *20-litter Sow-Pig Nursery*, and *Single Pole Corn Crib*.

A copy of the 1991 Midwest Plan Service catalog can be obtained free of charge from county Extension offices, or contact: Agricultural Engineering Extension, 200 Davidson Hall, Iowa State University, Ames, IA, 50011-3080, phone (515) 294-6361. Keep this resource in mind if you're making plans for your farm.

Sustainable Agriculture Position in Nevada

Title: State Extension Specialist in Sustainable Agriculture

Responsibilities Include: Provide statewide leadership and coordination to assess needs, establish priorities and clarify issues regarding sustainable crop production in the state of Nevada. Assist area specialists located throughout the State in planning, development and implementation of educational programs to address the identified priority issues. Program focus will be on the development of crop production systems that are economically profitable and environmentally compatible.

Qualifications Include: A Ph.D. is required with academic preparation concentrated in sustainable crop production systems.

Contract Includes: Individual will be employed under a 12-month, tenure track, university contract. The employee will be expected to provide research support funds through competitive processes.

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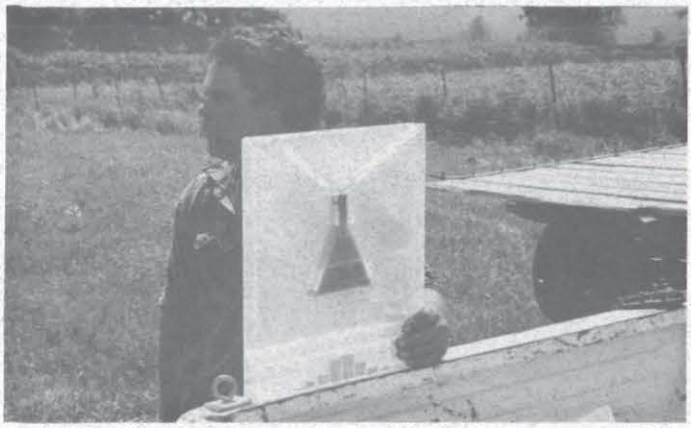
FARMER-INVENTOR
Larry Conrad, Delta, Iowa



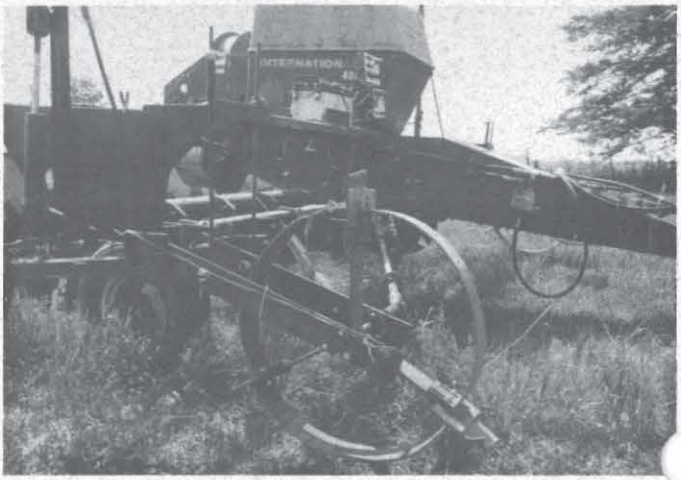
Larry Conrad shows how a typical bander of dry material deposits most of the product in the center of the band, potentially leaving the outside edges under-treated.

One of Conrad's corn fields in the third week of July. The crop has been row-cultivated. But the corn was not row-planted, it was "*check planted*" in spaced hills.

On side slopes, Conrad says, banders leave most of the material on the down-hill side of the band.

The corn has also been cultivated *across* the rows. This is a 45° view. Weed control is improved by cross cultivation, and it may be possible to reduce insecticide rates.

A better way: the Conrad bander is now patented and in search of a manufacturer. Larry is selling a few out of his shop.

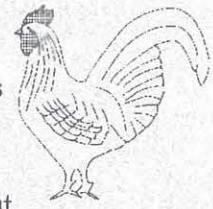


Electronically activated relays drop several seeds per hill. On this prototype, a paddle wheel drives the circuitry and synchronizes the planter with the previous pass.

(Continued from page 5.)

Application Deadline: August 30, 1991. Forward letter of introduction, current resume, summary of research interests and abilities, three letters of reference and official transcripts to: Elwood L. Miller, Nevada Cooperative Extension, University of Nevada-Reno, Reno, NV, 89557-0004.

POULTRY COOPERATIVE PROVIDES ON-FARM INCOME



The Homestead Pride Poultry Cooperative is a new business serving central Iowa with home-grown fresh and frozen chicken. The co-op delivers 4- to 5-lb birds to consumers at a price of $5 each. Trucks also pick up the chickens from producers, who net about one dollar apiece. The feed sold to growers by the co-op contains no subtherapeutic levels of antibiotics after the chicks reach one week old.

Homestead Pride was organized by the farm group PrairieFire with support from the Northwest Area Foundation. According to Joan Allsup, of Prairie Fire, the idea grew from the several rural women's conferences held in recent years, at which participants expressed the need for ways to generate extra income on the farm. Jobs off the farm usually require expenditures for transportation, wardrobe, and childcare that eat into earned income.

Slaughtering is done in Adel and Paulina. In addition to being marketed to individuals in central and western Iowa, the chickens are sold at the Des Moines farmers' market and in Des Moines Dahls Supermarkets. The plan is to market birds spring-through-October.

The original feasibility study for the project showed the need for a volume of 20,000 birds per year. This year's sales will run about 10,000 birds. The problem is not weak demand; many Iowans have expressed a preference for the farm-grown poultry. The limit to growth has been the number of chicken producers. Homestead Pride is looking for more people who will market through the cooperative. At the present, growers are being sought within about a one-hour travel time from Des Moines.

To order frozen or fresh chickens, or to inquire about raising chickens through the co-op, contact PrairieFire at (515) 244-5671, or call the co-op office in Stuart, at (515) 523-2134.

IOWA HERB PRODUCERS GAINING EXPERIENCE

-- Jean Smith & Ray Bures
Ridge View Farm Herbs

The Kirkwood Community College herb growers have not met formally since our trip to the Seed Center at Iowa State this spring. Now everyone is busy out in their fields!

This year is a year of research, experimentation, and trial-and-error learning for most of us. Production of a variety of herbs is being attempted, including caraway seed, coriander, basil, oregano, sage, summer savory, chives, and dill, to name a few. Since each herb has its own unique requirements there has been a lot to learn.

For those of us attempting to plant seeds directly into the field rather than setting out started plants, solving the planting problem has been one of the major obstacles. Here at ridge view we have used a gel planting medium with a fair amount of success. With what we have learned this year we feel we can make some improvements for next year and definitely plan to use the gel method again.

Here in eastern Iowa Mother Nature has not cooperated with our project at all. Most herbs require a consistent source of moisture, so setting up some kind of irrigation system has been a must this summer. With this in mind we planted the herb plots within reach of a water source. A simple and quick-to-install system was devised using garden hoses, rotating lawn sprinklers and black plastic pipe feeding from existing outside hydrants. This method has worked quite well and is another good basis on which to build and improve for next year.

Tone Brothers Spice Co. from Des Moines -- as well as local restaurants -- have expressed an interest in buying specific herbs locally, so there is definitely a market out there for us if we can produce!

The herb growing and marketing network is growing, and we keep making new contacts in this field to share ideas and knowledge. Recently we were visited by two partners of Maitland Greenhouses in Maitland, Nova Scotia. They are currently in greenhouse herb production, but they are very interested in starting field production. No one in their area is doing field production at the present time, so they were most interested in any knowledge we had to offer. They plan to make a return visit to check on our progress.

MEDICINAL HERBS WORKSHOP AT SPRINGBROOK CONSERVATION EDUCATION CENTER

-- Daniell Wirth

The Iowa Department of Natural Resources hosted a medicinal herbs workshop on June 8 and 9 for teachers, naturalists, environmental educators, and members of the public interested in the topic. This session took place at the Springbrook Conservation Education Center, in Guthrie County.

The group members had in common a love of the outdoors, a special interest in plants, and a desire to learn more about how to use plants in teaching situations.

Harvesting "doorstep herbs" at the Springbrook Conservation Education Center.

Our presenter, Pam Montgomery of Green Terrestrial Herbs, is one of a growing number of people who grow herbs for commercial production. While she does produce a number of specialty crops, her real enjoyment comes in sharing her knowledge of everyday plants. Imagine making an oil from the leaves of the common plantain -- or "white man's footprints," as Pam told us they are called -- for use as a topical treatment for minor skin irritations like mosquito bites, chigger nips, and poison ivy. I have since had the opportunity to use this plant for two of the three suggested uses. Plantain is also not unpleasant in a salad with other edible "weeds."

Participants also learned how to make nettle teas and mullein flower ear oil. When I think of all the nettles I chopped until I began eating them as a spinach substitute three years ago, I begin to wonder how much potential profit I scythed before I woke up to the benefit of wild plants.

Topics discussed included the potential for commercial production of selected herbs in Iowa for spices, healing, and fragrance. The students, many of whom were from farms, were intrigued by the possibility of a cash crop that is gentle on the land, suited to Iowa's climate, and that commands a high price on the commercial market. Also, the initial investment in an herb business is minimal. Little land, machinery or chemical inputs are required, just lots of hand labor and a good knowledge base. Young people starting out today in agriculture may find herb culture suited to their energy level and pocketbooks.

I was especially interested in one of the plants that Ms. Montgomery discussed during the class. Our own native *Echinacea angustifolia*, the beautiful purple coneflower. I have myself been using a commercial preparation of this wildflower for two years. I had read in some folklore that native Americans used it as an immune system stimulator and that it can rid the human body of "strep throat." I am a person who seems to get strep from yawning too widely, and I thought that it was at least worth a try. After all, if the butterflies in the

butterfly garden of the Springbrook Conservation Education Center appeared to appreciate the plant, it might be worth considering. I have been pleased with the results. For me, the plant has worked well.

Pam showed us how to dig up the coneflowers growing wild in the Guthrie County road ditch, harvest a portion of the roots, and then replant the crown of this native perennial so that it will keep growing. She also talked about the ethics of ''wildcrafting,'' a term used to describe the harvesting of wild plants. She is concerned about reducing the populations of native species by overharvesting. Pam recommended gathering seeds from the wild and cultivating them on the farm.

Looking up and down the road ditches, Pam was impressed with the health and variety she saw. For an eastern person used to mountains and oceans, she was quite taken with the beauty of the Iowa landscape. She said that the movie ''Field of Dreams'' took on a special meaning for her. It caused me to think that those of us who live in this state really do have much to be enthusiastic about. Perhaps diversifying and rethinking what we consider to be suitable crops will bring us closer to the land and promote a sustainable future.

MAKING IT INTERESTING FOR KIDS

-- Danielle Wirth

Many individuals participating in the workshop were wanting yet another tool to get young people interested in the outdoor world. My own experience has been that if I could tell students about how a plant was used by Native Americans, pioneers, or other ancestors, which animals may especially seek out the berries or fruits, or which plant can help their itchy mosquito bite, they are likely to remember more. I have also found that subtle knowledge about habitat, season, moisture requirements, sun versus shade, and variations in color, texture, and scents are also learned and remembered by kids.

The real test of how well plants can absorb students in a lesson about the outdoors came when I had the opportunity to work with a group of high school students visiting the Conservation Center this summer. The most accurate description I can provide is that they were normal, healthy teenagers. Plants -- especially medicinal ones -- were not exactly on their list of interesting things to do on a class trip. After munching on violet leaves for a few moments however, I was able to get one of the ring-leaders to be brave enough to try some. Lucky for me she was honest and reported them quite flavorful, if a little slimy, and most every one in the class followed her lead. I was pleased with the recall students had at the and of the afternoon.

CROP PRODUCTION COSTS IN SUSTAINABLE AGRICULTURE

-- Don Davidson, Holland

Last March, Rick Exner, the Extension/PFI on-farm trials coordinator, asked me if I'd be willing to help him summarize the cost-of-production data on our 1990 PFI Research Results. I said that I'd like to do that, since I'm always wondering about costs. I feel that acceptance of sustainable farming practices will gradually come about *if* we can prove that costs of production don't increase from normal practices.

After Rick sent me the data this spring, I decided to compare costs between the high rate and low rate treatments in each research trial. This was best accomplished by organizing a worksheet much like Iowa State Publication FM-1712, *Estimated Costs of Crop Production in Iowa - 1990*. However, I added some different twists to my worksheet.

For instance, if a PFI cooperator cultivates his plots twice, then he looks at Iowa State's estimated cultivation costs for one cultivation cost and doubles it. I have a problem with that. Iowa State's estimates include: (1) a fixed cost (depreciation, interest, insurance and housing); and (2) a variable cost (fuel, oil and repairs), both based on stated hours of use per year. Since a second cultivation increases the use hours over which cultivator fixed costs can be spread, I charged variable cost estimates twice but fixed costs only *once* for implements used twice.

There are better ways to calculate equipment costs. For example, you can use *Estimating Farm Machinery Costs*, Pm-710, along with information about equipment accumulated hours, purchase price, hours of use, repair costs, and other data. The better your records, the more accurate estimate you can make of the per-acre costs of equipment.

Labor costs were taken from a 1988 labor study that Dr. Michael Duffy accomplished with PFI cooperators. I totaled up the acres/hour estimate for each field operation, added twenty percent for travel and breakdown time, and took that figure times $6.00 per hour for a total labor cost. Land costs were figured as the average cash rental rate for each cooperator's soil type in that county.

Well, when all was said and done, we had our costs of production, but I wasn't satisfied yet. We needed to look at profitability -- it doesn't help if you produce corn at $2.00 per bushel if it's only worth $1.90 per bushel. I calculated gross value per acre for high and low rate treatments by multiplying yield by the average central Iowa price at harvest ($5.90 per bu for beans, $2.05 per bu for corn). Yields were left the same for each treatment if they *weren't* significantly different, but if yields *were* significantly different, then the actual yields for each treatment were used. Once we had the costs per acre and the value per acre, I calculated Net Income Per Acre (gross value minus total cost per acre), Return Over variable Costs (gross value minus variable costs), Return To Land and Labor (gross value minus variable and machinery costs) and Return To Land (gross value minus variable, machinery and labor costs). The shaded sidebar shows example calculations.

Finally, I had a grasp on our sustainable costs and returns, and I could take a look at the "big picture". Now remember, I am only working with one year's data, so it's too early to draw conclusions that are absolute truths. But after computing all of these economic costs, the following items were apparent to me:

1. Spending *more* money on crops, be it fertilizer, or herbicide, or tillage, doesn't mean more income. In the 1990 research trials the high rate treatments didn't increase yields but did decrease profitability, due to higher expenses. See, for example, Figure 1, page 11.

2. Low yields are unprofitable unless a farmer is almost free of debt. Why? Because the fixed costs (machinery, labor and land) make up a big share of the total cost, and they have to be paid whether or not the grower gets a crop. In sustainable farming practices, we are primarily controlling our variable inputs. Machinery and labor inputs are not as easy to control, and land costs have very little control. The farmer who owns his or her land free of debt will always be in a better position to absorb low yields and/or low prices. Figure 2 shows the spread in these costs for several cooperators who ran nitrogen trials last year.

3. Corn, without the benefit of government programs, can be unprofitable at average yields and average prices. In 1990, low-rate practices in corn gave marginal

1990 - ALLYN HAGENSICK/CORN

LOW N RATE

	($)	
SEED	21.56	
N FERT	8.80	(80#)
P/K FERT	0.00	
STARTER	9.38	
HERBICIDE	22.00	
INSECTICIDE	0.00	
FUNGICIDE	0.00	
OTHER SEED	0.00	
CROP INSURANCE	0.00	
MISCELLANEOUS	10.00	
TOTAL VARIABLE COSTS	74.91	
		(HOURS)
MOLDBOARD PLOW	0.00	0.00
CHISEL PLOW	0.00	0.00
STALK CHOPPING	0.00	0.00
TANDEM DISK	0.00	0.00
SPRAY/DISK	0.00	0.00
HARROW	0.00	0.00
SPREAD MANURE	10.00	.40
INJECT FERTILIZER	0.00	0.00
GRAIN DRILL	0.00	0.00
PLANTER	0.00	0.00
RIDGE-PLANT/NO-TILL	10.22	.20
ROTARY HOE	2.54	.12
ROW-CROP CULTIVATE	0.00	0.00
RIDGE-CULTIVATE	7.60	.32
POST-EMERGE SPRAY	2.82	.08
COMBINE CORN	23.45	.29
COMBINE SOYBEANS	0.00	0.00
COMBINE SMALL GRAIN	0.00	0.00
PICK EAR CORN	0.00	0.00
HAUL GRAIN	4.55	.29
TOTAL MACHINERY	61.18	1.70
TOTAL LABOR COSTS		12.24
LAND COSTS	115.00	
SUBTOTAL COST/ACRE	263.33	
YIELD	137.80	
SUBTOTAL COST/BU	1.91	
HARVEST MOISTURE %	19.00	
DRYING COST/BU	.09	
TOTAL COST/BU	2.00	
TOTAL COST/ACRE	275.39	
HARVEST PRICE/BU	2.05	
GROSS VALUE/ACRE	282.49	
NET INCOME/BU	0.05	
NET INCOME/ACRE	7.10	
RETURN OVER VARIABLE COST/ACRE	195.52	
RETURN TO LAND AND LABOR	134.34	
RETURN TO LAND	122.10	

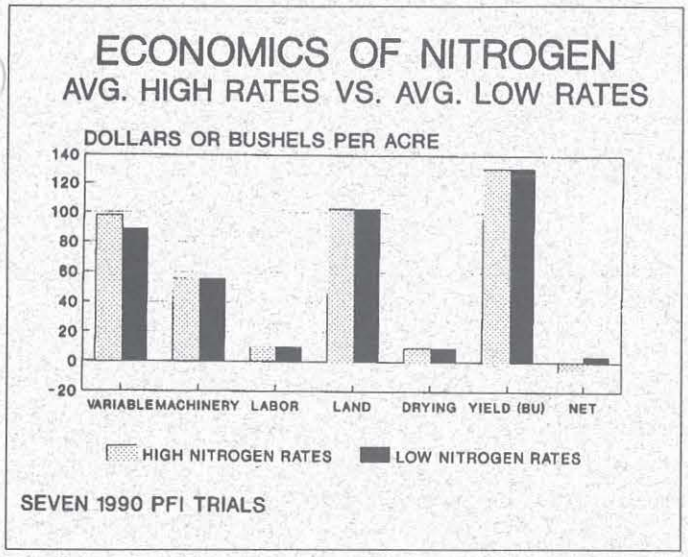


Fig. 1. Many PFI on-farm trials demonstrate profitable reduction of variable costs. Other costs contributing tp bottom-line profitability may be more difficult to control.

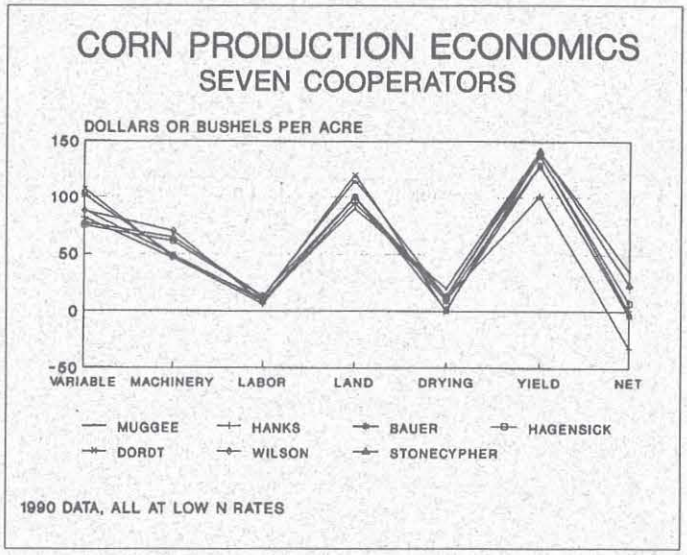


Fig. 2. A comparison of cropping system costs and net return in seven PFI trials.

profitability, and high-rate practices almost always were unprofitable. In order to make corn profitable (without price support) we have to get above-average yields with average costs or average yields with below-average costs. In a couple of last year's trials, cooperators who utilized multiple sustainable practices (lower N rate, zero herbicide, etc.) made profits on corn with average yields.

4. Soybeans had a very good year in 1990. This was due to a combination of above-average yields and above-average harvest prices. I imagine that if one were to input a sale price of $5.50 per bu (where beans have bean at most of the year since harvest), profitability would probably be somewhat less, but beans would still be profitable due to good yields. I have always felt that beans are a "make or break" crop. With good yields and good prices, they are fantastic, but with average or low yields and low prices, they can be a disaster. Small differences in yields or in input costs can make big differences in soybean profitability.

5. Oats? Well, with average yields and below average prices, oats were a definite loser in 1990. However, losses in oats were sometimes less than in corn which had a lot of money spent on it and then yielded poorly (remember 1988 and 1989?). I think in order to make oats a viable crop for Iowa farmers to consider growing again, we need consistent yields of 100 bushels per acre or more and better disease resistance. I like raising oats, but until I can get consistent yields, they will be a minor enterprise in my farm operation.

6. Ridge-till farming practices can result in lower machinery and labor costs compared to more conventional tillage practices. However, these cost reductions are not as great as reductions in fertilizer and herbicide costs.

After summarizing all these data, I'm still not satisfied with these results. I feel that with our research results, we are just looking at a "snapshot" of part of our operations. This can be misleading. For example, what if our plots happened to have the highest yields on the whole farm or to lie on the cleanest or weediest places on our fields?

I think that some of us are reaching that "transitional" stage where now we are ready to start applying the results of the on-farm trials to practices used over the whole farm. But how will these new practices change our overall financial picture? There are several methods for whole-farm economic analysis. They go beyond *relative* costs (the kind recorded in on-farm trials) to show bottom-line profitability on an enterprise-by-enterprise and a whole-farm basis. They also go way beyond my space here, so I will address whole-farm economic analysis in a future article.

If any PFI members out there would like to comment on or discuss these results, I'd love to hear from you. I need some feedback on these items. You can call me at (319) 224-6347 or you can call Rick Exner at (515) 294-1923.

PENDIMETHALIN TOXICITY DATA

Editor's note: the following information appeared in the June, 1991 edition of *Pesticides and You*, published by the National Coalition Against Misuse of Pesticides (NCAMP), 701 E. St., S.E., Suite 200, Washington, D.C., 20003.

There are still significant data gaps in understanding of the systemic herbicide pendimethalin, including most data on chronic toxicity and animal and plant metabolism. Ten-year-old legislation requires more stringent retesting of older pesticides for health and environmental effects. So far six of the several hundred materials have completed testing and been reregistered. Pendimethalin has been used since 1972 as a preplant-incorporated or a preemergence control for grassy weeds. American Cyanamid markets the formulation Prowl™ for use in corn, soybeans, sorghum, cotton, and potatoes.

Despite incomplete data, studies indicate that the herbicide is extremely toxic to fish and other aquatic organisms, even at application rates recommended on the label, with 50% kills at water concentrations of 0.138-0.28 parts per million. The danger would most likely be from drift and surface runoff, since Pendimethalin becomes strongly attached to clay and organic matter. However, it has been detected in groundwater in Iowa and Florida. Pendimethalin has low acute toxicity to birds.

Prowl™ contains nearly 50 percent of the "inert" ingredient monochlorobenzene (MCB). According to American Cyanamid, the toxicity of MCB is a greater issue than that of pendimethalin. MCB is a nervous system depressant, an immunosuppressant, and has been found to cause mutations, cancer, and birth defects.

TAKE CHARGE MEETING TOUCHES GENETIC CONSERVATION

-- Rick Exner,
On-farm Trials Coordinator

Why is it that weeding the garden is so satisfying? It's a repetitive activity, which should make it boring, and (at least in *our* garden) it is a job whose conclusion seems always somewhere out of reach. Especially because Mother Nature keeps moving in new weeds to replace those I take out. Maybe the satisfaction comes from the feeling that "this is the right thing to do," and the confidence that, somehow, the work *will* be rewarded.

These thoughts went through my head a few weeks ago as I was happily thinning sweetcorn. I was also thinking about the meeting I had just attended in Decorah, at the "Heritage Farm" of the Seed Savers Exchange. The event was organized by Jim Tjepkema, of the Rodale Institute, to discuss preservation of genetic resources in agriculture. The Rodale folks are to be commended for introducing this new theme into the discussion of sustainable agriculture in the Midwest. And even though it's hard to see where the new information will take us, I came away from the meeting with that "right" feeling I get from garden work.

The Seed Savers Exchange began in 1975 as a grassroots way to share and preserve rare and heirloom garden varieties. It has blossomed into a national organization of several thousand members and produces an annual catalog listing seeds of 5,000 vegetables, nuts and fruits. These folks take genetic conservation seriously! Seed Savers founder and director, Kent Whealy, received a prestigious McArthur Foundation Award last year.

Also on the program were Shan Thomas and Hans Peter Jorgensen, codirectors of the Institute for Agricultural Biodiversity. The Institute, also located in Decorah, works to preserve rare breeds of livestock from around the world.

On the farming side of the agenda were PFI cooperators Dick and Sharon Thompson, Tom Frantzen, and

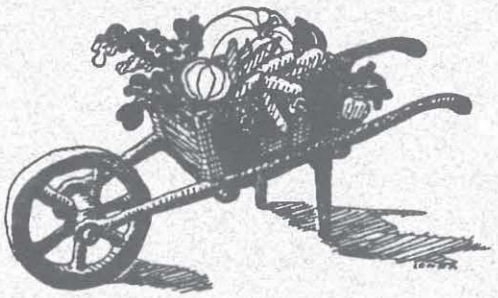
Mike Reicherts. Their talks were probably something of an eye-opener to many people. The audience consisted of both farmers and individuals associated with the Seed Savers community. Many in the latter group had probably never heard directly from farmers pursuing sustainable agriculture. Several expressed interest in attending PFI field days this summer.

The meeting was designed to explore the common ground between sustainable agriculture and genetic conservation. There seemed to be agreement on both the goals of sustainable agriculture and the need to preserve the genetic resources in domesticated plants and animals. And it appears these "antique" varieties and breeds have something to offer contemporary agriculture too; for example, corn that can be planted six inches deep to reach scarce moisture, small grains that resist root diseases, and livestock with prolificacy, mothering ability, or hardiness superior to anything found in modern breeds. The farmers present also expressed needs for genetic alternatives; for instance, a greater selection of legume winter cover crops and row crops better adapted to cultivation.

So far so good. But how can these genetic resources be turned to meet the needs of farmers? Producers cannot be expected to carry on their own programs of crop breeding. The situation is somewhat more hopeful in livestock, where a few farmers may actually benefit from having some heirloom animals in their herds, but formal breeding programs would still be needed to realize the full benefits. There is a need for plant and livestock breeders and geneticists to utilize the characteristics in rare breeds and heirloom plant varieties. And, of course, there is a need to preserve these genetic resources.

My wife Sue and I left the Heritage Farm with lots of selfish reasons to stay in touch with Seed Savers. They include the promise of winter-hardy spinach, hot peppers from Mexico, and Baldwin apples like the ones I used to taste in New England. Membership in the Exchange costs $25 per year and entitles you to the catalog and other publications. Seed is traded at cost among members. Contact The Seed Savers Exchange, Heritage Farm, RR 3, Box 239, Decorah, IA, 52101.

I can't predict where this issue will go from here. The task of preservation and the work of utilizing these resources are daunting. Like weeding, they don't offer a quick and simple conclusion. But the meeting felt right. It raised issues, it educated farmers about genetic conservation, and it taught preservationists about sustainable agriculture. That seems like a good start.



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District 1 (Northwest): Bob Graaf, RR 1, Palmer, 50571. (712) 359-7787.

Associate board member for District 1: Paul Mugge, RR 2, Box 48, Sutherland, 51058. (712) 446-2414.

District 2 (North Central): Dick Thompson, PFI Treasurer, RR 2, Box 132, Boone, 50036. (515) 432-1560.

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District 4 (Southwest): Vic Madsen, RR 3, Audubon, 50025. (712) 563-3044.

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

Associate board member for District 5: Jeff Olson, RR 2, Box 147, Winfield, 52659. (319) 257-6967.

Coordinator: Rick Exner, Room 2104, Agronomy Hall, ISU, Ames, Iowa, 50011. (515) 294-1923.

Public Relations Coordinator:
Maria Vakulskas Rosmann, RR 1, Box 177, Harlan, 51537. (712) 627-4653.

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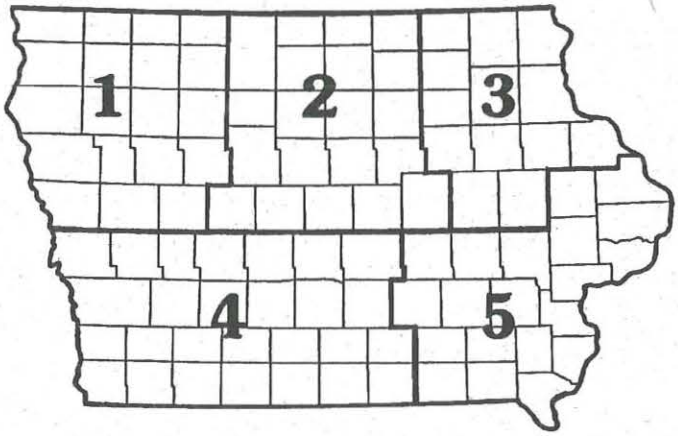

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