

the Practical Farmer

Practical Farmers of Iowa newsletter

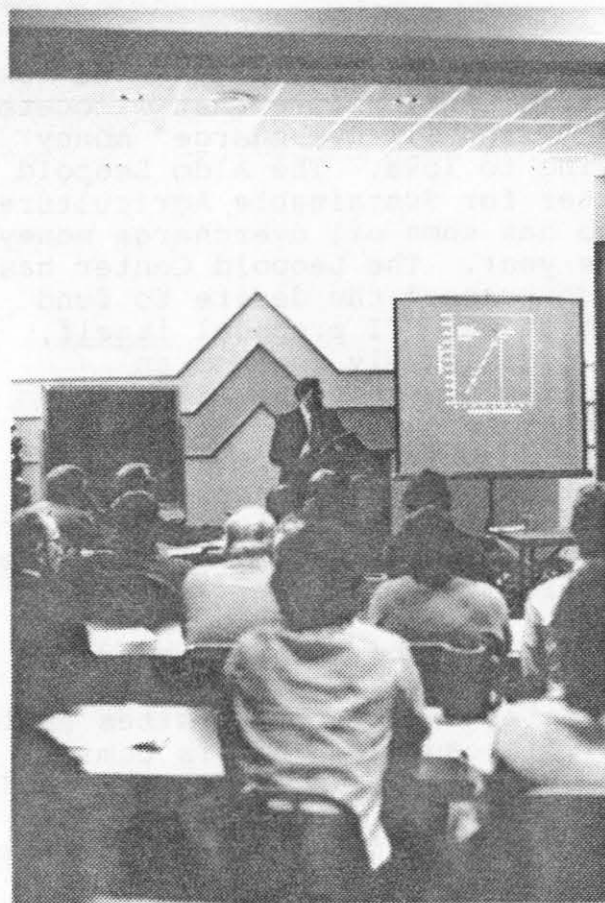
Volume 3, #1
Spring, 1988

PFI FUNDED TO HIRE COORDINATOR!

Back in the summer of 1986, the PFI board of directors began exploring sources of outside funding with the idea of hiring someone to help with field trials, meetings and outreach. In the year-and-a-half since then, we have produced multiple drafts of six different proposals. There have been disappointments along the way, but we have also found some new friends.

In August of 1987, the Wallace Genetic Foundation gave \$25,000 to Practical Farmers of Iowa for general support of the organization. This grant allowed the board to reduce the cost of membership and meetings. It also put us in a stronger position with other agencies that PFI was approaching for funding.

These efforts have been rewarded. In December, 1987, the Iowa Agriculture Energy Management Council accepted PFI's proposal (budgeted at \$94,300) to expand the on-farm demonstration trials and hire a coordinator to help with the project. The coordinator will be hired jointly by PFI and the Ia.



Dr. Blackmer speaking at the annual meeting.

Cooperative Extension Service. The tie-in with Extension will help PFI communicate the news coming out of the on-farm trials to a larger audience. It will also increase Extension's knowledge of- and credibility in the input-efficient methods practiced by PFI farmers. In approaching this cooperative arrangement with Extension, PFI's board of directors has considered the question of independence. The directors felt that if this arrangement ever threatened our identity as an organization, it would be because PFI had lost touch with its own membership. The benefits appear to far outweigh the risk.

The Ag. Energy Management Council is the body within the Iowa Dept. of Agriculture that allocates the "Exxon Oil Overcharge" money coming to Iowa. The Aldo Leopold Center for Sustainable Agriculture also has some oil overcharge money this year. The Leopold Center has now expressed the desire to fund part of the PFI proposal itself, and additionally to fund an economic study of the PFI demonstration farms. Although these organizations require that Practical Farmers reapply for funding every year, indications are that the project could be supported for five years.

This will be a hectic year for PFI. There will be twice the number of on-farm trial sites as in 1987. Because funding is coming through later than we'd hoped, and because of the mountain of paper that must be produced to get things started, the coordinator will not be hired for some months yet. This means that PFI members will be running the show all by ourselves, again, at least for much of the summer. But reinforcements are on the way!

THIRD ANNUAL MEETING

The third annual meeting was held on Saturday, December 12 at the Starlite Village motel in Ames. About 80 people registered for the meeting and several former members renewed their memberships. Several faculty members from Iowa State University and private Iowa colleges also attended the meetings.

The morning program featured two invited speakers. Dr. Alfred Blackmer spoke on his work measuring soil nitrogen losses due to leaching and on developing better nitrogen tests. Dr. William Brown spoke on the role of biotechnology in sustainable agriculture. He was president of Pioneer Hi-Bred and is currently chair of the Board on Agriculture for the National Academy of Sciences.

After lunch, the program featured reports from our PFI field experiment cooperators. Dick Thompson also explained the importance of experimental design. Breaks throughout the program provided opportunities to view the book display and to talk with the speakers. These discussions help PFI members and university researchers to appreciate each other's role better and to consider possibilities for cooperation.

BLACKMER TALKS NITROGEN TO PFI

Dr. Alfred Blackmer talked about nitrogen both at the winter annual meeting and at the North-Central district winter meeting. His research on nitrogen movement and nitrogen tests are on the "cutting edge" of what is known on the subject. This year, we finally persuaded him to speak to PFI's

farmers.

One reason Fred Blackmer has been reluctant to publicize his work is his fear of being misinterpreted or of misleading people. Considering the millions of pounds of N put on the soil each year, the consequences of that could be far-reaching. Despite his caution, though, Blackmer is starting to speak out. His talks began with a general description of all the things that can happen to nitrogen in the soil. There are transformations, and there are various ways N can be tied up or lost from the soil. (For a discussion of these, see The Practical Farmer, vol. 1, #4; Fall, 1986. "The Effects of Agricultural Management on Soil Microbial Life.")

There followed a description of what led Blackmer to his present research. Long-term rotation studies, such as the one at Kanawah, Ia., showed that less than half as much nitrogen was recovered in corn grain and stalks as was being applied to the land. Even worse news came when Blackmer used ¹⁵N-labeled nitrogen, which allows the fertilizer to be traced in the crop and the soil. Of the nitrogen reaching the plant, less than half actually came from the fertilizer! The rest of the N had its origin in the breakdown of soil organic matter.

Between 1982 and 1984, an average of only 18% of fertilizer N was recovered in corn grain during the year the fertilizer was applied. Another 1-2% carried over and was recovered in the grain over subsequent years. What's more, half to two-thirds of the fertilizer N couldn't be located at all.

In coming years, you're going to be hearing a lot about "soil macropores" and "preferential flow." It comes down to this: for most Iowa soils (sand and coarse loess may be exceptions), nitrate nitrogen moves out of the root zone at a rapid rate. It now appears that this is the case because soil water "prefers" to flow through the macropores -- the root channels, worm channels, and cracks -- instead of through the densest parts of the soil. In other words, water in the soil takes the path of least resistance, and nitrate nitrogen moves with the water.

The bad news is that we're losing loads of nitrogen. But there is good news, too. Because nitrate moves right out of the profile and doesn't accumulate at lower soil depths, you can get a pretty good idea of how much nitrogen is available in the whole root zone by sampling only the top foot of soil.

Blackmer's research team has been doing just this, sampling the top foot of soil, when the corn plants are 10-12" tall. In the first two years he has seen a solid relationship between final corn yields and the amount of nitrate-N in the top foot at this early stage. If the correlation does prove to be reliable, then farmers could use this soil test to precisely adjust nitrogen side dressings!

Fred Blackmer is presently evaluating a number of nitrate test kits. He expects that growers would be able to test their own soil samples and thus minimize turnaround time. This year PFI cooperators will be using the kit recommended by Blackmer, as an adjunct to their N-fertilizer trials.

Dr. Blackmer is careful to say that he is not yet writing out prescriptions. It will take time to develop calibrations to link together test levels and side dress recommendations for corn in various rotations. Further, Blackmer says, there is evidence that not all kinds of nitrogen fertilizer behave the same. Stay tuned for developments.

**WILLIAM BROWN OF PIONEER:
BIOTECH AND SUSTAINABILITY**

Dr. William Brown, past president of Pioneer Hi-Bred International, addressed the winter annual meeting on the topic: "Biotechnology and Sustainable Agriculture." There was some significance in this appearance by the executive of a major agribusiness firm before a group such as Practical Farmers of Iowa. Those firms have often equated the welfare of agriculture with maximum sales of their products. William Brown, though, has asked questions about the long-term prospects of farming. Brown is chair of the Board on Agriculture of the National Academy of Science, which will soon release its study on alternative agriculture.

Brown said he had "a statement and two questions." He prefaced the statement with the observation that agriculture has gone from maximum production to overproduction. "But," he insisted, "productivity is still something to strive for." He went on to define productivity in terms of efficiency, given the cost/price squeeze facing farmers.

Productivity, Brown suggested, is a better investment in international peace than are armaments. How did we achieve the present productivity, and what must

we do to maintain it? These were the questions Brown attempted to answer next.

About half the yield increases in the past 50 years have come about through genetics. (Brown also acknowledged the "tremendous effect" the Extension Service has had on agriculture production.) He noted that, despite the fact that research has proven to be a good investment for productivity, state and federal sources for ag research have not increased in real terms since 1965. (Editor's note: for most Land Grant universities, the slack has been picked up by industry.)

Before the genetic manipulations of biotechnology can do anyone any good, Brown said, more basic research must be done. For example, although more than 250 corn genes have been identified, the particular genes related to production are still largely unknown.

Brown commented on a report by the federal Office of Technology Assessment, which predicts that immediate increases in crop yields will come from existing technologies, not biotechnology. The report states that milk production will double in the near future, when bovine growth hormone is released. Brown expressed skepticism. He said the hormone may prove to be too expensive, or the controversy around it may delay its release.

The OTA report also projects that by the year 2000, the number of farms will have declined to 1.2 million from the present 2.2 million, and that just 50,000 farms will account for 75% of the nation's production. Brown said he believes the report underestimates the resiliency of moderate-sized

farms. The very large farms may be most vulnerable to input controls, finding it more difficult to supply the intensive management needed.

In answer to a question from the audience, Brown acknowledged that the OTA study did not take into account the additional advantage large farms could attain by being vertically integrated with processing, transportation and marketing operations.

There certainly would have been more discussion from the audience had we broken up into smaller groups -- PFI members have a lot of questions about the effects of biotechnology and agriculture research on their farms and communities. But Dr. Brown is so widely known and venerated that most people kept their comments to themselves until lunchtime.

1987 ON-FARM RESULTS

PFI cooperators reviewed their experiences at the winter annual meeting. The results from the on-farm trials are very encouraging. First, the spread of numbers was small in most trials, indicating that there was good control over experimental conditions. This shows once again that farmers can run their own trials, using side-by-side narrow strips across the field, and get statistically reliable information.

Secondly, the 1987 results all showed no differences in yield between the high-input and the reduced-input situations. Reduced inputs resulted in added profits of \$2.66 to \$21.25/acre, depending on the site and the trial.

The nitrogen comparisons used the cooperators' customary rate next to a reduced rate of N. With

the warm, dry spring, there was early release of nitrogen from crop residues, manure and soil organic matter. A cold wet spring would give a more severe test to the adequacy of these reduced N rates.

Weather also contributed to the weed control experiments. Some herbicides were not activated in the dry spring of 1987. At the same time, cultivation and rotary hoeing were very effective under these conditions.

Both the nitrogen and weed control trials will occur again in 1988. In addition, some cooperators are interested in comparing potassium banded and broadcast. Last year's cover crop trials will be yielding their first information this year, as well. With double last year's number of cooperators, there should be plenty of interesting things to see around the state this summer.

MULTIPLE CHOICE "QUIZ" ON LOW-INPUT AND SUSTAINABLE FARMING SYSTEMS

Ron Rosmann contributed this quiz, which he used in the district 4 regional meeting. After you try it, you might see how your in-laws do on it. Ron also sent what he termed the "supposed answers," which appear in the Notes and Notices. If you finish early, sit quietly at your desk. Pencils ready? Alright, begin.

- 1) Which of the following would be considered as the most "soil building" 5-year rotation?
 - a) corn, corn, beans, corn, oats with plowdown alfalfa
 - b) corn, beans, corn, beans, corn
 - c) corn, oats, hay, corn, beans
 - d) corn, beans, shattercane, oats, hay
- 2) Composting is:
 - a) a breakdown of raw material

- into stabilized forms of organic matter
- b) a breakdown of raw materials into stabilized forms of N, P and K
 - c) a fermentation process utilizing aerobic bacteria
 - d) all of the above
- 3) One of the advantages of "composting" manure is:
 - a) high temperatures in the pile will kill weed seed
 - b) low temperatures in the pile will kill weed seed
 - c) composting allows for quick release of N, P and K
 - d) composting is easily achieved in the winter season
 - 4) Hairy Vetch is:
 - a) a new noxious weed
 - b) a legume cover crop
 - c) a new herbicide
 - d) the "Johnny Appleseed" of Vicia sativa
 - 5) How many field trips with the rotary hoe and the cultivator are usually adequate in growing corn without herbicides?
 - a) one rotary hoe, one cultivation
 - b) three rotary hoe passes, three cultivations
 - c) two rotary hoe passes, two cultivations
 - d) you can never rotary hoe and cultivate enough
 - 6) The most precise N applications can be made:
 - a) in early spring
 - b) in the fall
 - c) on warm, sunny days
 - d) in June, at cultivation time
 - 7) A soil test reading of 400 ppm of potash would be considered:
 - a) very low
 - b) low
 - c) medium
 - d) very high
 - 8) A P1 soil test reading of 35 and a P2 reading of 70 would be considered:
 - a) very low
 - b) low
 - c) medium
 - d) very high
 - 9) Maximum fertilizer efficiency should be based on:
 - a) realistic yield goals for the field
 - b) credits for legumes and manures
 - c) correct timing and method of application
 - d) all of the above
 - 10) Which of the following best describes how we judge our fellow farmers:
 - a) by what their production costs are
 - b) by what their net return per acre is
 - c) by their clean fields and their crop yields
 - d) by the size of their A.S.C.S. check
 - 11) Which of the following best describes "appropriate technology?"
 - a) because we can do something, we must do it
 - b) appropriate technology will result in fewer, but larger farms
 - c) appropriate technology allows us to make choices and gain control over our lives
 - d) appropriate technology will increase production and efficiency
 - 12) The Iowa Groundwater Protection Act:
 - a) levies a 75-cent tax on N fertilizer to be paid by retailers
 - b) mandates research into alternatives to heavy dependence on farm chemicals

- c) created the Leopold Center for Sustainable Agriculture at Iowa State University
 - d) all of the above
- 13) Allelopathy is:
- a) the response of crops to biological pest control
 - b) another word for apathy
 - c) the effect of one plant species on the growth of another plant species
 - d) not documented in university trials
- 14) A good rule of thumb for percent of slope considered "highly erodable" would be:
- a) 14%
 - b) 3%
 - c) 11%
 - d) 8%
- 15) The word "organic" makes people:
- a) sick to their stomachs
 - b) think of the 5-acre, back-to-nature farmer
 - c) afraid of lower yields and more weeds
 - d) think of high-priced specialty foods
 - e) afraid of too much labor and the need for more management skills in their farm operation

DISTRICTS HOLD WINTER MEETINGS

This is the first year that all five districts are holding their own regional meetings. The fact that they are demonstrates a new level of organization and maturity on the local level. A variety of approaches is being taken by the different districts. Here is a rundown of four past meetings and a fifth that will take place soon.

District 1 (Northwest)

This meeting was held the afternoon of February 10, in the IPS Community Building, in Storm Lake. Bob Graaf, PFI district director, reports that the seven hardy souls who attended fought snow drifts to get there that day.

A video was shown of the Audubon special "Common Ground," which includes footage of the '86 field day at the farm of Dick and Sharon Thompson, near Boone. Then Cyril Venner, who has farmed organically for 19 years, described his operation and talked about how and why he got started. With two sons, Venner now farms 1,200 acres in western Iowa. They dairy, feed cattle, and raise hogs -- all without routine use of antibiotics. Their organic beef is sold at the Blooming Prairie Coop, in Iowa City. Among other crops, they grow organic popcorn on contract and sell soybeans at a premium to European buyers. Venner recently helped start the Iowa Organic Crop Improvement Association, which is the local chapter of an international confederation.

District 2 (North Central)

On February 11, in the Coulter Community Center, about 55 people came together for a program sponsored jointly by PFI and the North-Central Iowa Ridge-till Association. In the morning, Dr. Fred Blackmer gave a slide talk on nitrogen similar to the one he presented at the PFI annual meeting. A warming chili dinner was coordinated by Laura Hagensick, with contributions of chili from a number of kitchens.

The first speaker of the afternoon was Charles Kiepe, SCS district conservationist for Franklin County, who gave an informative talk about ways to bring highly erodable land into

compliance with the 1985 Food Security Act. Of the 1,100 farms in Franklin County, said Kiepe, about 500 have highly erodable land. A field is "highly erodable" if 30% of the soil in that field is so classified. Because cost-sharing money for terraces is limited, agronomic practices, including rotation, are going to have to be used to reduce erosion to the 5 tons/acre allowable limit, he said.

For example, Clarion-series soil with 8%, 150' slopes, loses an estimated 17 tons of soil per acre in a year under conventional tillage on a corn-bean rotation. In the same rotation, using ridge tillage on the contour, erosion is brought to 4 tons/acre. An 11% slope Dinsdale soil that loses 32 tons/acre in a corn-bean rotation under conventional tillage, can be brought down to an average of 5 tons/acre by using ridge-till and a corn-bean-hairy vetch rotation.

Completing the program were Dick and Sharon Thompson, who presented an update on their on-farm research into soil fertility and weed control. Most people at the meeting had never heard of Practical Farmers of Iowa. They got an earful, and although no one joined up on the spot, the experience seemed to be a positive one.

District 3 (Northeast)

You can still make this one. The northeast regional meeting will be held Thursday, March 24, from 10:00 to 3:00, in the REC Building, in Postville. This event is being put on in cooperation with the area RC&D and the Extension Service.

Tom Frantzen, PFI district director, will discuss his experience with ridge-till. Dick

and Sharon Thompson, also from PFI, will speak on manure management. Roger Koster, Extension associate in agronomy, will describe the Integrated Farm Management Demonstration Project being conducted in the Big Spring Basin. Finally, Kay Connelly, who is the area crop production specialist, will talk about using the nitrogen in manure and alfalfa for crop production.

District 4 (Southwest)

This meeting was organized together with Extension and the Golden Hills RC&D. It took place Monday, March 7, at the Montgomery County Fairgrounds Auditorium, in Red Oak. About 25 people attended, including a number of SCS and Extension people from southwest Iowa.

Leading off the program was Mike Nethery, State Conservationist with the USDA/SCS. He discussed the soil conservation provisions of the '85 Farm Bill. Extension economist Mike Duffy spoke on the economics of- and comparisons among low-input farming systems. Stan Murdock, area Extension crop production specialist, talked about managing nitrogen. Ron Rosmann, PFI district director, summed up with "Making a Low-Input Conservation Approach Work on Your Farm."

District 5 (Southeast)

report by Mary Bruns

"Lets Take Another Look at Farming" was the theme for a farming practices workshop organized by the Cedar Rapids Area Cooperative Extension Service and held on January 22, at the Ironman Inn, in Coralville. PFI welcomed this opportunity to work with Extension. A major goal of Practical Farmers is to provide information on effective ways to

optimize fertilizer and pesticide use, and this program featured six sessions on various aspects of input-efficient farming. Approximately 80 people attended.

Dale Seebach, Cedar Rapids Area Extension Farm Management Specialist, opened the workshop with "Key Issues and Concerns on Groundwater Quality and Reducing Costs." Mike Duffy, ISU Extension Economist, followed with "Diversified and Low-input Farming Systems: Pros and Cons."

Concurrent sessions that afternoon were: "Alfalfa Production, Harvest and Marketing," by Steve Barnhart, ISU Extension Agronomist; "Fertilizer and Manure Management," by John Creswell, Extension Crop Production Specialist; "Pesticide Management," by Dean Grundman, ISU Integrated Pest Management Coordinator; and "Low-Input Farming Practices Report," by Dick and Sharon Thompson, representing Practical Farmers of Iowa.

CONGRATULATIONS TO THE FRANTZENS!

The Iowa Junior Chamber of Commerce recently named Tom Frantzen "Outstanding Young Farmer of the Year." Tom is the PFI director for the northeast part of the state. He and his wife Irene farm 240 acres near New Hampton, with help from his father, John. Frantzen's selection makes him eligible in national competition.

The Des Moines Sunday Register, in its Feb. 21 article, gave some prominence to Tom's involvement with Practical Farmers and his concern for environmentally sound farming. He was portrayed as a bright, young farmer who is saving money and saving soil with ridge tillage and cover crops, and who

looks for ways to trim his input bills. That is a truly positive image to hold up to the agricultural community, and we're proud that Tom has achieved this honor!

ALTERNATIVE AGRICULTURE IN BOSTON

PFI member Rick Voland attended the annual meeting of the American Association for the Advancement of Science (one of the largest science meetings in the world) in Boston during mid-February. Most of the news stories from these meetings reported research about AIDS, superconductors, and the use of high technology for national defense, but scientists were also discussing agriculture. One session featured some of the authors of the report from the National Academy of Sciences (NAS) discussing the role of alternative agriculture in the United States. A later session on the same day featured authors of a report from CAST on the sustainability of US agriculture.

Both sessions covered similar problems, but the approaches were different in unexpected ways. Both panels included researchers from universities and supporters of alternative agriculture. Both panels agreed that the roles of fertilizers and pesticides will need to decrease. The CAST panel emphasized the importance of biotechnology in replacing agricultural chemicals, and the need for more expertise in the marketing of agricultural products overseas. The NAS panel discussed the need for more research across disciplines so that plant breeders, plant disease experts, and soil fertility researchers would cooperate. In addition, a fair amount of research already exists

that would help small and low-input farmers, but is published only in scientific journals and needs to be disseminated by the Extension Service. Support for increasing agricultural sustainability even reaches urban areas. The question was debated about how biotechnology would affect low-input farmers. All participants identified areas where agriculture is already changing to become more sustainable, despite government programs that discourage crop diversification and rotation. The topics and comments from these meetings suggest changes ahead for some agricultural research and for some government policies.

CONSIDERATIONS IN USING IVERMECTIN

(This article appeared in the December, '87 issue of the newsletter of the Kerr Center for Sustainable Agriculture, in Poteau, Oklahoma. It is reprinted here with permission.)

In recent years many farmers and ranchers have turned to ivermectin for use in their cattle parasite control program. Ivermectin is a very potent, broad-spectrum drug that will aid in control of a number of internal and external parasites, including: worms, grubs, flies, mites, lice, and ticks. Ivermectin has been very popular in the eastern Oklahoma area because of the ease of its application (subcutaneous injection) and because it will control so many different parasites.

Recently, a study done at Bristol University (United Kingdom) found that use of ivermectin in calves significantly reduced populations of beneficial dung degrading insects found in the cowpiles.¹ This occurred because much of the drug dosage was found

to be excreted in the animal feces, where it acted as a larval insecticide.

Although pest fly species were also decreased, yielding a potential benefit, the loss of dung eating insects caused cowpiles from the study calves to degrade at an abnormally slow rate. The study found that cowpiles from untreated calves were well on the way to being degraded after 40 days, while cowpiles from calves treated with ivermectin (at 40 ug per kg per day, as a sustained-release bolus) "...were still largely intact, retaining a solid crust and showing signs of erosion only at the margin..." after 100 days.²

The study cautions that the degree of this effect from ivermectin use may vary with local conditions, such as drug dosage, local climate, and insect populations. It could also be significant that the pesticide was administered as a sustained-release bolus in the study. Individual injections may not have quite the same harmful side effect. But the authors go on to state that their study results confirm findings of other studies, "...indicating that the increasing routine use of ivermectin in cattle is likely to pose a serious ecological threat to those insects...that have evolved to exist uniquely in conjunction with cattle dung."³

In cattle grazing systems, fewer dung-eating insects can mean slower nutrient cycling, decreased acceptability of forage to cattle, and slower forage regrowth. The findings of this study point out the value of taking a closer look at the broader ecological effects of using pest control materials in livestock systems. Use of ivermectin for parasite control can be very effective, but the cost of

ecological impacts needs to be considered; too.

The purchase cost of ivermectin is an additional factor for farmers and ranchers to consider. While ivermectin is effective in controlling parasites in cattle (it can also be used for sheep and horses), it will generally cost more to use than a combination of two or three other products needed to do a similar job. However, more research needs to be done on the environmental impacts of other products, as well.

At the Kerr Center, our current herd health program includes use of ivermectin for parasite control. Because of considerations of cost and environmental factors, it is used only on a selective basis. Our program calls for use of ivermectin with animals with severe parasite problems, but because of its cost and the possible decrease of nutrient cycling it can cause, we do not use ivermectin routinely. This approach reflects our program commitment to explore better cattle management practices that have lower cost and reduced ecological impacts as their goal.

--- Steve Muntz

References 1, 2, and 3: Wall, R., and L. Strong. "1987 Environmental consequences of treating cattle with ivermectin." Nature 327:418-421; Dept. of Zoology, Bristol University, Woodland Rd., Bristol B58 1VG, United Kingdom.

NOTES AND NOTICES

At the annual meeting, districts 1 and 4 elected representatives to the board of directors. Ron Rosmann was reelected by the southwest region. For northwest Iowa, Bob Graaf was chosen to take the place of retiring board member Gary D'Agrosa. Bob and Diane Graaf

farm 320 acres near Palmer. In addition to the typical Iowa crops, they raise herbs and flowers. Congratulations, Ron and Bob.

Dr. Michael Duffy, Extension Ag Economist, has joined the recently-formed PFI Technical Advisory Committee. Many of you who attended district meetings this winter have heard him speak on low-input farming systems. Mike will be doing an economic evaluation of PFI on-farm practices beginning this summer. His assistance will help us put better cost figures with the results of the farming trials. Welcome aboard!

Here are the "supposedly correct" quiz answers: 1, c; 2, d; 3, a; 4, b; 5, c; 6, d; 7, d; 8, d; 9, d; 10, c; 11, c; 12, d; 13, c; 14, c; 15, c and e. If you disagree, take it up with Ron!

PFI on-farm cooperators will get together to prepare for the '88 season from 10:00 to 3:00, on Tuesday, April 12, at the Starlight Village Inn, in Ames. The Starlight is at the 13th St. exit of I-35. Spouses are especially invited.

The PFI board of directors meets Saturday, March 19, 10:00 AM, in the office of the executive vice president.

CORRESPONDENCE

Correspondence to the PFI directors' addresses is always welcome.

District 1 (Northwest) Bob Graaf,
R.R. 1, Palmer 50571.

712-359-7787.

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

District 3 (Northeast) Tom Frantzen, RR 2, New Hampton, 50654. 515-364-6426.

District 4 (Southwest) Ron Rosmann,
Rt. 1, Box 177, Harlan, 51537.
712-627-4653.

District 5 (Southeast) Mark Mays,
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319-732-2040.



A friendly discussion at the annual meeting during a break in the program.

Practical Farmers of Iowa

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