

**CONSERVATION AND
ENVIRONMENTAL
ISSUES AFFECTING
MISSOURI AGRICULTURE**

**Report of Seminar
College of Agriculture, Food
and Natural Resources
University of Missouri-Columbia
November 14-15, 1991**

**Special Report 434
Agricultural Experiment Station
University of Missouri-Columbia**

CONSERVATION AND ENVIRONMENTAL ISSUES AFFECTING MISSOURI AGRICULTURE

On November 14-15, 1991, farmers, farm leaders, and other interested citizens joined to review environmental topics in agriculture. Insofar as a few themes ran through the discussion, the principal ones were: (1) as certain rules bearing on protection of soil and water move closer to enforcement, long standing relationships between farmers and public agencies (for example, the SCS and ASCS) change and sometimes are strained; (2) wetlands issues are more difficult to handle than other soil and water programs; (3) environmental concerns will not disappear nor will programs relating to them "go away;" hence, farmers and their leaders, and environmental groups, need to seek workable meeting of the minds.

The Breimyer Seminar series is funded from the University of Missouri-Columbia Development Fund. Contributions are appreciated. They may be sent to Office of Development, 117 Alumni Center, Columbia, MO 65211.

Ronald L. Plain
Chairman, Seminar Committee

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Report of Seminar on
Agricultural Marketing and Policy
College of Agriculture, Food
and Natural Resources
and
Extension Division

University of Missouri-Columbia

November 14-15, 1991
Columbia, Missouri

CONSERVATION PROGRAMS -- ARE THEY EVOLVING FROM
THE FARMER'S ALLY TO THE FARMER'S FOE?

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Government soil conservation programs have been a part of U.S. agriculture for over half a century. During that time the government has provided farmers with technical and financial assistance in an effort to reduce soil loss. One of the major features of the programs is that they were voluntary. The local SCS personnel were seen as friends to be called upon when farmers felt a need to address some of their soil conservation problems. Likewise, the local ASCS office was a place to receive cost-sharing funds for implementing selected conservation practices. The ASCS had few other responsibilities related to conservation. Indeed, ASCS had some responsibilities which today are viewed as inappropriate. One of my earliest recollections as a farm boy growing up in Iowa was of Dad's receiving financial assistance from the local ASCS office to lay drainage tile in our fields.

During the past three decades, however, a social movement emerged that eventually coalesced into a political movement. It came to be known as environmentalism. Its place or date of origin is hard to specify. Rachel Carson's Silent Spring, which raised a series of environmental concerns relative to farming, was published in 1962. The environmental movement displayed organizational structure when it held the first national Earth Day, April 20, 1970.

Among tenets of the environmental movement was a dissatisfaction with environmental efforts to that date. The movement was quick to focus on soil loss and it continued to do so, but it added other natural resource issues including concerns for water quality, wildlife, clean air, and others.

Government programs had previously given most attention to reducing soil loss. Reducing annual loss from 30 tons to 15 tons per acre was seen as a legitimate goal. The environmental movement, however, began to introduce new concepts such as sustainability, and T. Simply reducing soil loss was not enough. The emerging goal was to reduce soil loss to a level whereby soil productivity could be maintained into infinity -- the T idea.

Perhaps even more importantly, soil conservation was seen to be the responsibility of the farmer. Given government budgetary constraints and the belief on the part of many in the environmental movement that preserving the environment was a necessary condition that must be met by those tilling the land, large new financial resources were not necessarily called for. (Missouri was exceptional, as a special one tenth of a cent sales tax for

conservation was voted into law in 1984.) Instead of new financial incentives as in the past, many new programs such as Conservation Compliance, Sodbusting, and Swampbusting utilized negative financial incentives. The carrot was replaced by the stick. No longer are soil conservation and other resource conservation efforts solely voluntary. The government is interceding.

This does not necessarily mean farmers are against environmentalists or the new conservation programs. In fact, one has great problems defining an environmentalist. Many farmers consider themselves to be environmentalists. I remember a letter to the editor of one of the farm magazines, in which the writer said he was upset by an earlier article suggesting farmers and environmentalists were antagonists. This Iowa farmer indicated he was a member of the Audubon Society.

Attitudes of Missouri Farmers

Our studies of farmers' attitudes and behavior relating to soil conservation trace back to a Monroe county study professor David Ervin and I conducted in the late 1970s. In that study, we found most Monroe county farmers to be concerned with soil loss. In a department of rural sociology statewide poll taken in 1981, 27 percent of the farmers said they regarded soil erosion as a serious problem in the state. Forty-three percent felt it was a moderate problem; 19 percent called it slight. Only six percent indicated soil erosion was nothing to be concerned about.

In that survey, 41 percent of the farmers were concerned that soil erosion problems in their area had increased. Thirty-seven percent took the position that government should establish soil loss limits, and 62 percent of the respondents said the government should carry out water quality studies.

In a similar statewide survey made in 1984, 86 percent of the farmers gave their judgment that soil erosion had affected yields on cropland in Missouri either "somewhat" or "very much." Thirty-eight percent indicated they agreed or strongly agreed with a statement that the government should enforce soil conservation standards.

Along the same line, data from a 1979 statewide poll indicates that 32 percent of the farmers, as of that year, strongly agreed that farmers should take more care in the use of pesticides, herbicides, and the chemical and veterinary materials they give their livestock. Another 51 percent agreed with the statement (but not "strongly").

Another source of opinion data is surveys of farmers here in Missouri and in other states such as Iowa, Wisconsin, and Ohio, made since the late 1970s. Farmers have reported consistently that they are concerned with the natural environment in which they live -- more specifically with loss of soil productivity due to soil erosion, and the possible consequences of the use of chemicals.

Many feel the government should become more active regarding these environmental issues.

A second point I make is that although Missouri farmers see a problem in the state, individually each is much less likely to perceive a soil erosion problem on his own farm. This "proximity factor" has been tested and verified here and elsewhere. The meaning to be drawn is that we need to move from generalized information to more individualized information about farmers' own conditions. Individual education efforts, however, are time consuming and costly. The farm plans required by Conservation Compliance nevertheless should go a long way toward alleviating this problem.

It's possible that some farmers will change their general ideas about conservation and government regulation if they find they have a problem on their own farm.

Some farmers who have taken major steps to reduce soil loss still appear not to understand sheet erosion, or in any case are unconcerned about it. We all have seen instances where the county road department was called to clear silt from road ditches or the road itself. In some cases, the silt in the ditch produces excellent corn or soybeans, with few weeds. These examples are, of course, only the local, visible consequences of soil loss. Society has said this way of farming is not acceptable.

Doubts are still held about soil conservation practices such as no till or ridge till. As a response to skeptics I like a comment Gary Hoette, an extension agronomist, made several years ago with regard to no till. He said that if a farmer decides he is going to make no till work on his farm, he can make it work. Serious problems can indeed arise during the first few years of applying new systems, but many farmers cling to their old ways for non-economic reasons.

It's all partly an image issue. In many neighborhoods the concept of a good farmer is tied to such non-conservation practices as clean tilled fields, straight rows, and "zero weed" fields. On the other hand, in some areas of our state today, certain conservation practices are a necessary condition for labelling a good farmer. How can we extend this norm to areas where the thinking is still traditional?

Having attempted to document that farmers are not anti-environmentalists, I now trace the changing political climate and suggest that these environmental issues are a part of a larger set of social/political changes impacting upon agriculture. Environmental issues frequently get intertwined with other ones.

Changing Political Environment

Agricultural historians discuss in detail the farm policy process prior to the 1970s. Farm programs were developed by the

Congressional farm bloc (House and Senate members from major farm states), farm organizations, and the USDA. By the 1970s, commodity organizations had become more active in the development of the farm bill, but new actors also came on the scene. Two of the most powerful were the departments of State and Treasury. Environmentalists entered the debate in the 1980s. Their influence was seen in the 1985 farm law. When the 1990 law was drafted the environmentalists were brought into the formal and informal dialogue.

The "farm voice" is fading. Farmers make up less than two percent of the population. "Real" farmers, those with farm sales of over \$40,000 per year, make up less than one-half of one percent of the population. I would suggest that the concerns of farm families on small farms is quite different from those of larger farmers with regard to issues such as the environment, animal rights, and community programs.

I can recall debates going back to the Nixon administration concerning the need for a cabinet level position for agriculture. One of the reasons for keeping the Food Stamp program in the USDA is to enhance its legitimacy. But I can well remember the outcry of farmers when the Carter Administration brought in Carol Foreman to lead the department's consumer programs. The reason given for her appointment was to keep the food consumer issues in the department. That consumer-issue debate may resume before long.

As farmers become even fewer, their political influence will be even more difficult to maintain. The new actors who have "discovered the farm programs" will continue to be a potent political force.

New Political Coalitions

Increasingly, political scientists speak of coalition politics. It is highly evident in the agricultural arena, where coalitions come together and disperse frequently. Often they are so loose that it is hard to say who is in and who is out at any particular time.

When environmentalists were said to be active in writing the 1990 farm law, it was asked, "Whom do you mean?" On the Senate side, the more traditional conservation organizations were joined by what might be called "grassroots farm organizations," consumer groups, some traditional farm organizations, and others. Mervin Yetley, a staff member of the House Agriculture Committee, reported at the 1990 Breimyer Seminar that the larger coalition partly dissolved and only the more traditional conservation organizations were involved in the final negotiations of the House debate.

One of the concerns of the environmental coalition was to change much of the focus of research supported through USDA. During the discussion in drafting the research portion of the 1990 farm law, more emphasis on sustainable agriculture and human issues was called for frequently. In February 1991 the larger coalition

coalesced again to try to influence the appropriation process. As leaders of the agricultural experiment stations across the country (specifically the 1992 ESCOP budget committee) came together to develop their research priority list, they were presented an alternative research budget developed by the environmental coalition. Thirteen organizations were listed on the title page as supporting the alternative budget. They were American Farmland Trust, Center for Rural Affairs, Center for Science in the Public Interest, Consumer Federation of America, Consumers Union, Environmental Defense Fund, Friends of the Earth, Institute for Alternative Agriculture, National Family Farm Coalition, National Farmers Union, Natural Resources Defense Council, National Wildlife Federation, Public Voice for Food and Health Policy, Rodale Institute, Sustainable Agriculture Coalition, and Sierra Club Agricultural Committee. The list, although itself not complete, indicates the wide range of organizations attempting to influence the direction of agricultural research. Moreover, the organizations listed interact with other networks, although we cannot know how actively they do so.

Many persons in the agricultural community feel that they have the ultimate "truth" and that if others could only be educated, they would see the world in the same way. To be sure, there are communication problems. But some of the basic beliefs and the values held by individuals and groups in our population do differ. These are not easily altered with new information.

The above political comments can be summarized as follows:

1. As farm numbers decline, the political influence of farmers erodes.
2. As farms become more heterogenous (large vs. small, and specializing in one or a limited number of commodities), the organizations representing them become more diverse. Often such farm organizations are at odds with one another, as is the case of beef and dairy producers today. Putting together a coalition of farm organizations may be as difficult as putting together the environmental coalition.
3. The so-called environmental coalition has the potential to be a huge political force when an issue comes along around which a large number of organizations can coalesce. In addition, national opinion polls show that concern for environmental issues continues to increase.

In the past, conservation legislation relating to agriculture was largely written by farmers or their representatives. In the foreseeable future, environmental legislation will increasingly be drafted by non-farm groups. And those groups, their history suggests, will be willing to employ government regulation -- the stick.

Many of the groups focusing on environmental issues give little attention to the well-being of farm families or the rural community. On the other hand, other members of the larger environmental coalition represent farmers, and they hope to mediate the differences between farmers and the more traditional conservation organizations. The task is not easy.

One outcome of these alignments may be that farmers will find themselves supporting the goals of conservation legislation but taking exception to the means of achieving them. For some farmers the means may prove expensive. In all of the environmental debate we need to document carefully the public and private costs and benefits. Perhaps by working with the environmental organizations, aid can be obtained in reducing some of the private cost, and the equity issue of private versus public costs generally addressed.

Currently, the wetland issue has received considerable attention. My purpose in raising the issue is not to take a stand on how many days water must stand on a piece of land before it is called a wetland. Without becoming embroiled in the merits of the wetlands issue, I would simply suggest to farmers who feel they have recently "won one from the environmentalists" to enjoy their victory now. It may be short lived. If the environmentalists cannot achieve their goals through the agricultural committees and the agencies of USDA, they will take their causes to other committees which utilize other agencies of the Executive Branch. The political climate in which farmers operate is changing rapidly.

LIFE AFTER THE CONSERVATION RESERVE PROGRAM

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One and one-half million acres of Missouri cropland had been idled in the ten-year Conservation Reserve Program (CRP) through the ninth sign-up period. This represents nearly 15 percent of Missouri's tilled cropland acreage. Important questions regarding the CRP are (1) what will landowners choose to do with enrolled cropland when the contracts expire, and (2) what factors will influence their decision?

In order to address these issues, a survey was made, by stratified sample, of CRP contract holders in Missouri. Contract data held by county offices of the Agricultural Stabilization and Conservation Service were drawn on.

Previous studies of contractors' plans have concentrated on the soil conservation costs and benefits of the program (Ribaud et al, Young and Osborn). As contracts end, issues that will arise include (1) the bearing on commodity programs ("supply management") as crop base acreage is returned; (2) the effect on demand for farm inputs, in light of the growing focus on a low-input sustainable agriculture; and (3) maintaining soil erosion control and water quality.

The linkage between production agriculture and rural economies also makes the issue of the future use of CRP acreage important to rural development (Dicks et al).

Who is in CRP?

Over three-fourths of the responding participants say they themselves will make the decisions as to how the land will be used after the program ends. Participants average 60 years of age. More than 85 percent have at least a high school education. Nearly 75 percent live within 20 miles of most of their CRP acreage.

Participants were asked to identify the reasons why they enrolled land in the Conservation Reserve Program. Their answers were:

Note: This paper is abstracted from "A Sample of CRP Contract Holders on Future Land Use," by Michael Monson and Robert Lenkner.

	<u>Importance</u>	
	Most	Some
Retirement.	2%	1%
Reduce labor/more free time	11%	11%
Concern for soil erosion.	23%	16%
Most profitable use of land	25%	19%
Easiest way to meet Conservation Compliance	10%	17%
Low risk associated with the payments	15%	11%
Provide wildlife habitat.	13%	24%

Over half the participants indicated that they had enrolled all their eligible land in the CRP. Those who did not enroll all eligible acreage gave two principal reasons: prospective higher returns from crops, and a need for livestock feed.

How Will the Land be Used?

Participants anticipate that just over half the land currently enrolled will be returned to row crop production. One-third will be used as pasture or hay for livestock. Acreage returning to crop production will be subject to Conservation Compliance; if an approved conservation plan is not followed, program benefits will be forfeited. Participants estimate that 28 percent of the land will need terraces. Almost 16 percent of the acres would be no-tilled.

Participants reported that the following factors will restrict the use of CRP land for crop production and livestock grazing:

	<u>Importance</u>	
	Most	Some
Low yields on the land.	26%	28%
Expected low crop prices.	25%	20%
Cost of conservation practices required in order to maintain eligibility for government practices.	26%	22%
Lack of experience in conservation practices.	5%	18%
High variable costs of production	15%	10%

Factors that will limit use of CRP land for livestock production are:

	<u>Importance</u>	
	Most	Some
Inadequate fencing.	6%	4%
Inadequate water supply	37%	35%
High investment required for livestock.	33%	22%
Inexperience in livestock production.	13%	21%
Lack of profitability of livestock enterprises.	10%	16%

Participants were asked about their tillage practices on other cropland. Of that acreage, 44 percent has not required conserva-

tion practices, respondents said; and 39 percent of respondents do not use other practices. Only 6 percent use no-till or ridge-till:

Conservation Practices Used by CRP Contractors
on their Non-CRP Land

	<u>Percent of</u>	
	Acreage	Number of Respondents
None; none required	44%	41%
No-till or ridge-till	9%	6%
Terraced, now or in future.	17%	14%
Reduced till or conservation tillage	15%	12%
Farmed on the contour without terraces.	10%	7%
Use of rotations that include grass or legume pasture	23%	20%

Is CRP Land Really of Marginal Productivity?

Survey results do not confirm the impression, sometimes held, that land enrolled in CRP is only marginally suited for crop production. The majority of respondents indicated that yields and production costs are about the same on CRP acres as on their other cropland.

One concern has been that idling land in the CRP would allow producers to increase the intensity of fertilizer and chemical use on other land. However, according to survey data no additional nitrogen was applied to remaining cropland.

It has also been supposed that land enrolled in CRP had been cropped only during the high-commodity-price years of the early 1970s. Respondents denied that this was the case. Almost 56 percent of the respondents had cropped their CRP land 10 or more years during the 15 year period preceding the 1970s. Many of the others did not know the pre-1970 history. Most CRP land of surveyed farmers was an integral component of cropped acres.

The following data give more information.

Crop Yields on CRP Land Relative to Respondents' Non-CRP Land

<u>Relative Yields</u> (CRP to Non-CRP)	<u>Percent of Responses</u>
30 percent lower	5.9
20 percent lower	12.3
10 percent lower	13.7
Same	52.1
10 percent higher	5.7
20 percent higher	3.3
30 percent higher	6.9

Production Costs on CRP Land Relative
to Respondents' Non-CRP Land

<u>Relative Costs (CRP to Non-CRP)</u>	<u>Percent of Responses</u>
30 percent lower	6.5
20 percent lower	3.8
10 percent lower	4.1
Same	69.7
10 percent higher	7.5
20 percent higher	4.3
30 percent higher	4.1

Policy Alternatives

Many participants (67 percent) expressed an interest in extending their CRP contracts. However, only 2 percent would extend the contract at \$25 an acre rental payment. Obviously, if survey participants felt that such a policy was likely, the results will be biased. Net return estimates for similar quality land (Blase and Wollenhaupt) indicate that \$25 would be well above crop returns.

If the CRP land could be grazed or hay harvested from it, more than a third of the participants would continue the contract at \$25 per acre. The survey also indicates substantial interest in a permanent contract or easement. However, the average cost necessary would exceed current CRP costs. Producers would want a premium for permanently tying up CRP land.

Responses were as follows:

	<u>Yes</u>	<u>No</u>	<u>Don't Know</u>
I would extend the contract as is for 5 more years if given the option	66.9%	6.7%	26.4%
I would extend the contract for 5 more years if payments continued but crop base acreage were lost	26.9%	39.3%	33.8%
I would leave the land in grass for 5 more years if CRP payments stopped but my crop base acreage were maintained	12.9%	56.6%	30.5%
I would extend the contract for 5 more years if payments were \$25 an acre	2.2%	87.3%	10.5%
I would extend the contract for 5 more years if payments were \$25 an acre and I could hay or graze the land	34.5%	39.2%	26.3%

I would have planted more trees or shrubs on CRP acreage if the initial cost were cost-shared to the point where my cost would have been the same as grass	12.2%	69.8%	18.0%
I would be willing to plant trees on my CRP acres at my own expense if my contract were extended for 5 years with the same annual payment	7.1%	74.5%	18.4%
I would be interested in a permanent CRP contract	55.5%*	11.9%	31.2%

Wildlife Benefits

Over three-fourths of respondents feel that CRP has improved the quality of wildlife habitat on their farm. Less than 3 percent believe CRP has hurt wildlife habitat. Among individual species, respondents frequently rate quail and rabbit habitats as most frequently improved. Nearly two-thirds of the respondents regard wildlife as an important consideration in their choice of farming practices.

Disposition of Income, and Asset Position

The biggest single use of CRP payments is to retire outstanding farm debt. But respondents report that 25 percent goes for family living and leisure. The reported allocations of CRP income are:

Farm debt retirement.	40%
Non-farm investments and savings.	20%
Additional livestock.	2%
Replacement farm machinery and buildings.	7%
New farm investments (except land).	3%
New farmland purchases.	2%
Family living, leisure.	25%

It appears that CRP has not produced major changes in the quantity of farm assets. As expected, some row crop machinery has been sold, and some new investment made in livestock.

Seventy eight percent of responding CRP participants have assets of less than \$500,000. Only 9 percent report holdings of one million dollars or more.

Conclusions

Although half the CRP participants who were surveyed plan to put their contract land back into crops when contracts expire,

*For a permanent contract, the minimum annual payment would have to be \$68.21 per acre per year (respondents' average).

their decisions are affected not only by the terms of any extension but also by the Conservation Compliance requirements they will face on land that would be cropped again. Land that previously generated sufficient income may no longer provide the same earning power without substantial investment in conservation structures. Landowners may choose to retire some acreage or tolerate lower income from less erosive rotations rather than make this investment.

Some land previously valued as crop-producing may then be valued only as pasture or hay land at best.

There is some uncertainty as to how attractive commodity program benefits will be in the future. Any reduction in the terms of the programs (notably deficiency payments) will reduce the effectiveness of conservation incentives. Also, clearly, adequate appropriations will be necessary if CRP contracts are to be extended. The level of support for conservation measures shown by society, which definitely is strong, may prove to insulate farm programs from sharp budgetary reductions.

Anticipation of the future use of CRP land is vital in formulating policies for commodity supply management, soil conservation, water quality, and rural development. Hence, the data from the survey reported here are relevant for decision-making in commodity and conservation policies.

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THE PROCESS AND THE POLITICS
OF AGRICULTURAL POLICY-MAKING

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The Food, Agriculture, Conservation, and Trade Act of 1990 was a major piece of legislation. An account of its drafting and enactment, in which I had a small role as Chief Economist for the Senate Committee on Agriculture, Nutrition, and Forestry, can serve as an example of the process and politics of policy-making.

Although writing of the 1990 law did not give rise to the same type of acrimony that the 1985 law did, several small battles raged almost daily. Sometimes they were intense. At other times all sides decided it was time for a rest.

The 1990 law has 25 titles. For purpose of illustration I will focus on one part of one title, planting flexibility.

Background to Planting Flexibility

The Food Security Act of 1985 had laid out rigid guidelines for planting crops. With one exception, during a year a producer was paid only on the portion of the historical production base actually planted to the crop. The producer had to plant his program crop in order to receive deficiency payments.

The exception was the 50/92 program. It allowed a producer to plant as little as half his base acreage and receive 92 percent of the deficiency payments that would have been paid had he planted the entire base. But he was allowed to plant only a very select group of crops on the land not planted to his program crop. He could plant industrial crops (or leave the land idle). He very definitely could not plant soybeans, for example.

The rules regarding preserving future program-crop bases was also a significant constraint to planting freedom. If in a year of high soybean prices a producer planted some of his corn base acreage to beans, he would lose a portion of his corn base.

This constraint was figured out early in the life of the 1985 law, but until the droughts of 1988 and 1989 little interest arose in allowing producers the flexibility to plant something other than their program crop or crops.

The 1985 law had encouraged, and all but mandated, that a producer follow corn with corn with corn, year after year. But plant and insect pests tend to increase in severity the longer one crop is planted on the same field. Long term fertilizer and micro-

nutrient advantages accrue from rotating crops such as corn and soybeans, for example. Hence, both farmers and the conservation community saw something to be gained by allowing some degree of planting flexibility.

Disaster Assistance Act of 1988

The drought of 1988 led to a further realization that programmatic change was required -- in this case in order to allow for planting of soybeans. Bean and meal prices were high, yet soybean plantings would remain low under 1985-law rules.

Much of any added bean acreage would have to come from corn acreage -- acreage that had a payment base associated with it. The disaster assistance act of 1988 took a new step by allowing producers to plant soybeans on their corn base without loss of that base. Nevertheless, the new latitude was limited, reflecting concerns of soybean producers of the Southeast, for example, regarding the potential effect on soybean prices.

Sunflower and cotton producers likewise were apprehensive. More soybeans would translate into more soybean oil, and subsequently lower vegetable oil prices all around. The Cottonseed Oil Assistance Program (COAP) and the Sunflower Oil Assistance Program (SOAP) were products of their concern. Those programs to subsidize the export of cotton and sun seed oils were the price those industries required in order to accept planting flexibility.

So Congress began the debate on the 1990 farm bill with a consensus that producers wanted some planting flexibility, while recognizing that unlimited shifts between crops would not be acceptable to a large contingent of Southeastern members of Congress.

Flexibility Options

Flexibility can be provided for by several means. One is to pay deficiency payments on the total crop production base, irrespective of what is planted -- the decoupling principle. The Administration wanted something close to that.

The so-called equilibration option called for authorizing deficiency payments on a broader variety of crops. Target prices would be set so that producers would be indifferent to the various program payments. The suggestion was to provide target price protection for soybeans and other oilseeds and to adjust the target prices for crops that were well out of line with other crops.

Yet another option was the "triple-base." Under it, producers would be required to idle some portion of their crop base in order to receive payments on another portion, then would not receive payments on a third portion, on which they would be allowed to plant any crop they wished.

The Administration and Farm Organizations

The Administration staked out its position early, favoring not requiring the planting of a given crop as a condition for receiving payment. Many producer organizations including general farm organizations, on the other hand, wanted to keep at least some portion of the crop-production/deficiency payment connection. Cutting all ties between production and payments was viewed as decoupling and therefore converting payments into welfare for farmers -- a concept appalling to many.

The Administration also refused to make known what level of target prices it would accept. All in all, the Administration essentially dropped out of the negotiating picture for a significant period of time.

During much of the late spring and early summer various producer organizations tried to come up with an appropriate form of flexibility. Generally, there was support for allowing shifting out of a program crop into other crops, including other program crops, without loss of crop acreage base. But most groups did not want producers to receive deficiency payments for program crops on the shifted acreage. The main question was the amount of acreage to be shifted. Some stated only 5 to 10 percent; others suggested that there should be no limits.

The soybean sector came to regard planting flexibility as a good thing only if producer prices would be protected by increased loan rates. The soybean groups started the debate by insisting on a support rate of at least \$6.00 per bushel. At the time, the loan rate was \$4.50.

Consensus began to form around allowing a producer to plant whatever crop was of interest on up to 25 percent of his base, denying any deficiency payments on the acreage shifted to an alternative crop. Program crop bases would be retained on a shift of as much as 25 percent to a crop such as soybeans. Producers in soybean organizations began to wonder if planting flexibility was such a good deal after all.

I won't go into all the pulling and hauling that took place. A number of commodity groups lost enthusiasm, as each feared big acreage shifts into its crop, flooding the market and driving prices through the floor. Wheat producers contended that their producers had no alternatives to wheat and that corn producers would plant wheat instead of corn on their flexible acres, driving down wheat prices. Cotton producers were convinced that wheat producers in the Southern Plains would quit growing wheat and plant cotton. And so on.

Ultimately, the bill left the Senate Agriculture Committee with 25 percent flexibility and no limitation on crops planted on flex acres, and a \$5.50-per-bushel soybean marketing loan. However, producers would be required to give up deficiency payments on

acreage flexed into another crop. The bill also allowed producers to plant corn on wheat land. This was a major change in policy. It gave a corn producer the opportunity to plant corn in excess of his permitted corn acreage, but only as long as he cut back on wheat plantings by an equal amount.

Who, What, When, and How of the Process

Meanwhile, a budget cloud hung over the process. Everyone knew that agricultural spending would have to be reduced in order to meet budget requirements. Partly for this reason, bringing the bill out of Committee, a major effort, focused less on planting flexibility than on the level of support for various commodities, including soybeans.

Commodity groups had played a significant role in the long process of getting a bill. Program options were discussed early, and many were rejected. The Administration's position drew little support; it appeared to be a decoupled program.

The equilibration proposal, while fine in theory, would have required that target prices for a number of commodities be lowered. No commodity group volunteered to reduce the support level for its products!

This sequence basically left the option of providing long term protection to crop bases, while making no deficiency payments on land that was not in production.

The soybean groups were interested, but only if they received an increase in support level from \$4.50 to \$5.50. Other oilseeds were also willing to play, but only if loans were made available on their crops -- crops that up until this time had not had a government sponsored loan program.

In essence, flexibility was a great thing, so long as there were controls on the amount of acreage flexed and so long as income protection were provided on the commodities into which land might be flexed.

It is noteworthy that all of the decisions regarding planting flexibility were essentially made at the staff level. The finished proposal was discussed with members of Congressional committees, in some cases at length, but the agreements were reached between commodity groups and the Senate at the staff level.

Floor Action

As the bill moved from committee to the floor of the Senate, the debate shifted to a number of items, very few of which related to planting flexibility. Discussions arose concerning planting of fruits and vegetables on flex acres, but provisions regarding flexibility were not altered on the floor.

Advance preparation thus paid off. The major commodity groups, such as the National Association of Wheat Growers, National Corn Growers, American Soybean Association, Rice Growers, and the Cotton Council, had all been contacted and worked with prior to going to the floor. Each had some concerns but was aware that the larger focus was moving the legislation itself. The small discussion on fruits and vegetables was raised by members with specific minor crop concerns -- peas and lentils, for example.

A major unknown was budget reconciliation -- how much reduction in spending would be necessary. This had the effect of helping to limit the debate on issues such as planting flexibility.

Conference Action

The real work on the bill occurred not on the floor but in the Senate-House Conference. Before the conference met, the budget resolution was agreed to. Spending had to be cut by several billion dollars over the subsequent five years.

A little background on agricultural spending is relevant. Immediately following the passage of the Food Security Act of 1985, spending on agricultural programs skyrocketed. It approached \$26 billion in fiscal 1986. Of that, \$13.6 billion was associated with loan activity, due in part to the transition from the 1981 to the 1985 Act and the sharply lower loan rates of the 1985 Act. Direct payments to producers were "only" \$6.7 billion. This gave budgeteers considerable flexibility in the 1987 reconciliation act to cut spending without cutting direct payments to producers.

In fiscal 1990, program spending totaled \$6.5 billion, of which \$4.4 billion was direct payments. Cuts of any magnitude had to come from payments to producers. In short, there were no other pots left. Everyone knew that cuts in direct payments were coming as the conference started. The only real question was where the cuts would come from.

Most direct payments to crop producers are deficiency payments. The deficiency payment rate is based on the gap between target price and market price. The rate is multiplied by the number of acres the producer has historically planted and the historic yield. To reduce direct payments to producers, any of the three factors can be narrowed or reduced. In 1987, after a hard fought battle, the payment rate had been squeezed by lowering the target prices and increasing the loan rate.

Early in the development of the 1990 bill, efforts were made to increase the target price, not lower it. The final compromise was to leave target prices frozen. There was little political will to reduce target prices. One may argue the soundness: if the size of the check is to be reduced, what difference does it make to the producer as to how the reduction is done? But pressure is strong to keep target prices as high as politically possible.

The only feasible option remaining, in writing the 1990 bill, was to reduce the number of bushels used to compute payments.

Planting flexibility fit neatly into this context. As I sketched above, under the planting flexibility scheme as developed in the Senate (and the House too), a producer was required to give up payments in order to plant a substitute crop. Flexibility was allowed for, but government programs were still competing with market signals for what should or should not be planted on the flex acres.

The budget act required a reduction in direct payments. Reducing target prices was not politically possible. Cutting the number of acres payments were to be made on was possible. This gave rise to the so-called "triple base" which became a part of the 1990 law. Under the triple base a producer has three types of acreage: (1) that he must take out of production in order to receive target price and loan rate protection (ARP acres); (2) the acres he plants to a program crop and receives payment on (payment acres); and (3) acres on which he is allowed to plant any crop, including the program crop, on which he receives no payments (flex acres).

Naturally, there was interest in keeping payments as high as possible, and non-payment acres as low as possible. In order to meet budget reduction requirements, the lowest possible percentage was 15. Thus the 1990 law provides for 15 percent of the acreage planted to program crops to be planted without target price protection. The conference did not drop the 25 percent total planting flexibility provision, however, as an additional 10 percent can be flexed. Thus, in essence the law provides for a quadruple base, not just a triple base.

Much of this detail was worked out at the staff level. Innumerable meetings were held, and all parties included -- House, Senate and several representatives of the Administration. As is the practice in many governmental operations, a special task force was formed to go work out flexibility and triple base issues. This group quickly became known as the Dirt Group, since its task was to figure out what was to be done with the dirt (acreage).

Again, informal connections with commodity groups were ongoing. Naturally, no group was excited about reducing payments to producers. It would be a stretch of the imagination to say the groups endorsed the final version of planting flexibility. But it would also be a stretch to say that they were unaware of what was being developed.

Implementation of Planting Flexibility

After the passage of nearly any law, someone must sit down and write regulations to implement the law. Often there is considerable room for interpretation as to exactly how the law is to be implemented. In part this maneuvering room is intentional.

The Administration should be more capable of handling details than Congress is. Often, though, eventual interpretation via issuing regulations runs counter to the intent of Congress. This experience has not been absent in implementing the 1990 farm law.

Planting flexibility is an area where the Administration has done a fairly good job of implementing Congress's plan. The terms are complex -- there are ARP acreage, payment acreage, normal flex acreage, and optional flex acreage, for example. Moreover, whenever legislation is designed so as to give more degrees of freedom to the producer, more rules will be needed to operate the program. So it is with the 1990 law.

As mentioned before, the Administration was closely involved in the law-making process. The same individuals who sat in on the writing are involved in developing regulations. A fairly easy implementation of the law has followed.

Conclusion

Planting flexibility is an esoteric and certainly not a sexy issue. It offers, however, a classic example of the politics of agricultural policy-making. Commodity groups were concerned that all of the flexing would be into their crop, greatly increasing supply and depressing price. Within one week, I was approached by every commodity group and told that all the flex would be into the crop represented. I was convinced that at least some of the acreage would stay home.

One can argue about the merits or demerits of the budget reconciliation process. One can argue that agricultural programs have already been cut enough. One can argue that good policy cannot be formulated in this type of a budgetary atmosphere.

Economics is a series of studies in the maximization of objective functions, subject to constraints. The budget situation regarding agriculture and the government as a whole is a constraint. The objective function in this case was very difficult to determine. There were probably 535 different objective functions just among members of Congress. Staff members, the Administration, and commodity groups may double that number. But one common thread is the objective of maintaining or enhancing farm income.

Planting flexibility may not be the best example, but it is a case where the policy implemented the budget cuts in a way that was intended to give producers the maximum amount of discretion. Producers will decide what crop is best for them on flex acreage. Another option would have been to keep the same program constraints in place and simply cut the target price. That would have given producers the worst of both worlds. The budget cuts alone are one bad world. Making the cuts even as the planting constraints of the 1985 law were retained would have been two bad worlds. The 1990-law process avoided that outcome.

STRIKING A BALANCE: A JOURNALIST'S
PERSPECTIVE ON CONSERVATION ISSUES

Sara Wyant
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All in all, agricultural journalists have done a pretty good job explaining conservation basics to our farm audience. My friend Gregg Hillyer, of Soybean Digest, recently wrote that Conservation Compliance is "taking the bite out of the fall tillage bug. Recreational tillage is finally going out of style." This is a good example of how farm journalists have helped change attitudes.

But despite our successes, I don't think we've done enough -- as journalists, researchers and educators -- really to present the economic and political cases for conservation.

After all, we have to remember that to most people farming is first and foremost a business. And practices that are perceived as being unprofitable -- whether they actually are or not -- just aren't going to fly in farm country.

An Iowa County as Example

In my home county in Iowa, we have about 220,000 tillable acres, of which about 160,000 acres are highly erodible. When talking with a farmer recently, I asked him to sit down with his local SCS officials and tell me what else he needed to do on his plan by the end of 1994. As background, the farmer has been practicing minimum tillage for over five years. He has put in several terraces, grass waterways, and filter strips. But he originally thought that Conservation Compliance would go away. And when it seemed to stay, he looked at the declining value of federal farm programs and figured the carrot probably wasn't going to be very big by the time compliance rolled around.

Going into 1992, this 1,800 acre farmer will already have kept some land out of the program because of payment limitations. On the remainder, it looks as though he's in pretty good shape except for about 200 acres. On that land, SCS expects him to rotate corn, oats, meadow, and meadow. When I asked what this suggestion means to him, he told me this equates to "profit, break even, go broke, go broke."

Policymakers Forget about Land and Rental Payments

I can talk about the soundness of crop rotations until I'm blue in the face, but the fact is that I don't have to make payments on those acres. And I think that's a key factor that many of us forget. Most of the people who influence policy and make policy decisions don't have land costs to pay or rental payments to make.

And I guess that's one reason I'm glad my newsletter and communications firm is based outside of the Washington Beltway. Sometimes policymakers get so wrapped up in the way things "should be" that they forget what life is really like in hardscrabble U.S.A.

After all, how many lenders have you heard saying -- "Yes, I'd really like you to make less profit next year because you need to be a good conservationist"? How many landlords have told their farmers, "Please switch tillage practices even if profits might be cut in half"?

One farmer friend told me that telling farmers they must plant what they perceive as an unprofitable rotation is similar to telling an environmentalist that he can buy a new \$50,000 BMW but must park it for the next two years because it might contribute to air pollution. There's only one major difference. The environmentalists can ride federally subsidized transportation to and from work and still earn a salary to make car payments. The farmer depends on his land for his livelihood.

I've heard some folks say that farmers can just put that highly erodible land in the CRP and get paid to retire it for 10 years. Many farmers have taken advantage of this option and rightly so. But what are you going to do with all of those 160,000 acres in my county? Even if we could exceed the 25 percent cap on enrollment, who would want to do that? Large enrollments are suicidal to local communities. We've already lost many farmers, the John Deere dealer, and an elevator in the last five years. Can you imagine what kind of impact even a 50 percent enrollment would have on the economics of that community?

That's not to say that I'm defending farmers who don't implement soil-saving practices. I personally agree with many of the goals set forth in the 1985 and 1990 farm bills to protect soil and water resources. With the growing emphasis on water quality, conservation practices take on added importance. We can't stop pesticides from going into surface water until we stop soil from going into surface water. In other words, conservation practices can help reduce the amount of pesticides that run off into streams and other waterways.

I personally think we need to keep economic considerations in the forefront and try to strike a balance. And we need to explain conservation issues better so that conservation practices will be perceived by farmers as having an economic benefit.

SCS: Damned if They Do and Damned if They Don't

I have a soft spot in my heart for the SCS and really the ASCS folks too who will be working in county offices at sign-up this spring. The ASCS folks will sometimes have to deliver bad news, based on SCS decisions. It's not going to be pretty. SCS is in a

damned if we do and damned if we don't position on Conservation Compliance.

SCS officials in Washington have prepared an internal memo talking about what's likely to happen this spring. The memo lists at least two primary concerns.

Enforcement too lax. If enforcement is viewed as too lax, SCS will be charged with running a loose ship -- with showing favoritism to its farm constituents. The agency will be subject to Congressional oversight and environmentalists' wrath.

Enforcement too tough. The second main concern is the opposite, as another group of critics alleges that enforcement is too tough. Congressmen are already practicing the "not in my district you don't" ritual which says it's OK to enforce rules, but let's not get my farmers mad at me.

The SCS estimated that as many as 26,000 farmers nationwide could be out of compliance by the end of 1991. I think many more will just go out of the program. If there isn't enough money to attract farmers into the farm programs, we won't get high rates of Conservation Compliance.

Good Economic Sense, Even Better Political Sense

That's why we need to strike some type of a balance because conservation makes good long-term economic sense and it makes great political sense. If we don't establish a good track record on compliance, environmental interests will eat our lunch in the Clean Water Act, which is up for reauthorization next year. Farmers who think nothing can happen to them if they are out of the program have another think coming.

We could see an entirely new set of regulations that require fields and runoff to be monitored and large fines on farmers who exceed certain levels of runoff.

Clean Water Act

Sources have been telling us for months that environmentalists are going to come back and "get their nickel's worth out of ground-water protection" provisions in the Clean Water Act. Earlier this year, the EPA and the environmentalists charged that agriculture was responsible for 70-80 percent of all non-point source pollution. So how did we deal with it?

Commodity groups and cattle growers (the EPA cited both pesticide use and feedlot operations as culprits in non-point pollution) started to point fingers at each other over whose runoff it was. "We were beating each other to death and the Natural Resources Defense Council was enjoying every minute of it," one House staffer told me.

If we don't succeed with a voluntary program, the environmentalists will come back at us full force with fingers pointing, saying the need for regulatory action is clear. Compliance now can be an effective defense against more red tape later.

In summary, I think journalists and the people we talk to need to do a better job of explaining the economic and political benefits of conservation.

Be Creative with Solutions

And we need to put our thinking caps on and continually search for ways to make conservation practices equate with good business practices in the eyes of farmers. If I were a part of the SCS, I would be conducting focus groups in every state to determine why some farmers aren't complying and are dropping out of the program. Is the cause lack of information? Or lack of resources? And if the answer is economics, then I'd be thinking of ways to improve economic conditions. We should be asking questions such as, "What would it take to bring you on line?"

For example, let's consider what kinds of financial incentives or loans can be offered farmers who implement good conservation practices. Certainly, the existing cost sharing programs are a big help. But could we offer premiums on deficiency payments for people who are in compliance? Could we offer low-interest operating loans from FmHA for no-till farmers? Or low interest loans to buy no-till equipment?

How about working with the American Banking Association and the Farm Credit System to send the message about how conservation can be linked to profitability? And encourage these lenders to offer some incentives.

As 1992 will be an election year, these ideas might be especially practical for President George Bush to consider -- if he wants to be the environmental president. He could win farm as well as environmental votes by offering some form of tax credit to farmers who purchase new conservation tillage equipment or implement other soil saving practices next year. It's a good way to create jobs and stimulate the economy at the same time.

Finally -- and the President could help here too -- farmers across the country could stand a good dose of higher farm prices. As many of you know, farmers are a lot more open to new ideas and new practices when the children are fed, the bills are getting paid on time, and there's not so much worry about tomorrow.

And let's face it. Unless we do more to keep farmers profitable, they won't buy from their local communities, they won't purchase from agribusinesses, they won't contribute to their state universities, they won't pay taxes, and last but not least, they won't need as many farm publications.

ASCS'S ROLE IN MONITORING COMPLIANCE WITH
THE 1990 FARM LAW

Bo Wendleton
Program Specialist, Missouri State Office,
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The Food Security Act of 1985 essentially had two provisions relative to conservation. One, to remain eligible for federal farm programs a farmer is required to do the following: get a farm plan on any highly erodible land that he intends to farm, and then follow the plan. And secondly, if he has any wetlands, he is not permitted to manipulate them beyond the condition they were in on December 23, 1985.

The rules sound simple. However, they present a challenge for ASCS and for our sister agency, the SCS, with which we work closely -- not to mention farmers. It is more difficult than may be supposed to get the rules implemented.

I divide my explanation of ASCS's role into three activities. One is information, the second monitoring, and the third compliance. With regard to information, the question is how we can best inform the public, primarily farmers, about what the law requires. We in ASCS are in a unique position in that we see more farmers daily than does any other state or federal agency. We believe that we have the best delivery system in the USDA. We know who farmers are; we know their addresses; we know how many acres they farm. We have a lot of personal contacts, especially during sign-ups. It is not surprising that our agency has a major responsibility for delivering information about any new piece of legislation. Conservation Compliance is no exception.

We also use media such as bi-monthly newsletters, public meetings, and of course the press.

ASCS is the official keeper of records relating to highly erodible land and wetlands. Anyone who is in touch with us knows that we have aerial photographs of the land in a county. The photos are taken at about 40,000 feet. On the prints we record all highly erodible land determinations made by the SCS as well as all wetlands determinations. Those prints become a public record. A person can come into our office and find out what fields he has that are highly erodible, and what wetlands are so designated. Not only landowners but real estate brokers are interested in knowing what tracts have been determined to be highly erodible, or a wetland.

In addition to having an official record on a photograph in our county offices, we maintain a listing on our computer system. It is an IBM system 36. From that we are able to tell on a field by field, tract by tract, farm number by farm number, producer by producer basis, who has a farm plan on his highly erodible land, and who is filing such a plan and who is not.

We have a lot of multi-family, multi-state producers in Missouri. We can go into our control county -- which is the county a producer chooses for certification of compliance -- and pull out data on every tract the producer has in every state, and determine whether that producer has a farm plan and if it is being followed. It's all part of a national hook-up. The producer is spared going to a lot of county offices; and he can learn readily where he stands and whether there is a problem. If it turns out that a farmer is not following his plan, we refer the situation to the appropriate county office where the tract is located.

The basic mechanism in our administration of the law denying eligibility for program benefits to a farmer who does not have a farm plan or is manipulating his wetlands is a certification form called an AB-1026. We require any producer who expects to receive federal benefits to be able to certify on an AB-1026 that he is fully in compliance. As long as he certifies that he is in compliance and our computer system shows that to be the case wherever he may be farming, he becomes eligible for federal benefits. Irrespective of a farmer's particular program benefit (it might be a cost-share practice, or a feed-grain payment he would like to sign up for, or buying federal crop insurance, or getting an FmHA loan) the farmer will end up in an ASCS office and will be asked to complete and sign an AB-1026.

In connection with the AB-1026 we try to inform producers as early and thoroughly as we can what the law requires.

Farmers often ask why they should worry about certifying compliance. We point out the kinds of benefits that are at stake. Among our ASCS programs are ACP cost-share -- we cost-share building terraces, waterways, and other erosion control structures; CRP; emergency conservation programs; all disaster programs; dairy refund; payments for storing grain, wool, mohair. Also subject to certification of compliance are the commodity programs, which in Missouri include tobacco, peanuts, cotton, rice, and honey in addition to the grains.

I pulled a few figures from our records showing the amount of money that in 1989 went out through our 114 ASCS offices. ACP, \$7½ million; CRP, \$97 million, dairy indemnity, \$2,551; emergency feed assistance, \$12½ million; disaster program, \$20 million; commodity loans, \$114 million (this figure has been lower more recently); deficiency payments, \$215 million. The total is about \$522 million. About \$4.6 million per county would not have gone out if our farmers had not been in Conservation Compliance. Those various payments constitute a lot of incentive for producers to stay in Conservation Compliance.

Granted, this attraction may not amount to the program's being quite as voluntary as some of us would like, but it is certainly an incentive. For if I were in the second year of my 10-year CRP contract I would have a pretty strong vested interest in trying to remain in compliance.

Secondly, monitoring. How do we determine whether or not producers are following the law? In Missouri we do that by two methods: ground compliance, and aerial compliance. We fly 83 counties annually. We use ground compliance in 31 counties, mainly located in the Ozarks. For aerial compliance we put a 35 mm. camera through a hole in the bottom of a plane and at 8,000 feet take slide photographs. The slides are projected on screens and we can observe the kinds of cropping on a farm. We can look into whether land is cropped that does not have a determination on it as to its erodibility class. If such land is cropped a Sodbuster violation may be indicated.

Let me explain that it is not objectionable to plow up sod; but if the land is highly erodible it is necessary to get and follow a farm plan.

We do our aerial slide compliance checks we look for land that has been broken out that according to the rules should not have been put into crops. We also check for whether wetlands appear to be planted or manipulated. In either case, if we suspect a violation we refer the case to the SCS, which will make an official determination as to whether the land is highly erodible in the first place; if it is not, we have no problem. The SCS will decide whether the manipulation we think we see in a wetland goes beyond the land's status as of December 23, 1985.

Generally, we select farms to be checked randomly. By ASCS standards there are 108,000 farms in Missouri. In 1991, 78,000 farmers came into our offices and reported their acreages -- they are ineligible for federal benefits if they do not report acreages in the first place. The rest of the farms either produce little, or the farmer chooses not to be eligible for federal benefits. Of the 78,000 farms, we have randomly selected 11,000 on which we make a variety of determinations as to compliance -- not just Sodbuster and Swampbuster. In addition, on about 2,600 farms spot checks are required (not random). Any ASCS employee who farms will be spot checked, as will farmers who have had a mixed record of compliance in the past.

We entertain whistle-blowers. When we are told of a problem we follow up.

So approximately 13,000 farms will be looked at either aurally or by ground checks this year. Our findings will of course be either favorable or unfavorable; and this leads to my final topic, the eligibility associated with findings as to whether or not a farmer is in compliance.

It would be easy for us just to say, when someone is not following the plan, "Hey, bail out!" That would be the end of it. I wish it were that simple. We have what is known as affiliated persons rules which become more involved than just to say, "Joe has a problem." If a person files a 1026 saying he wishes to get federal benefits, we give consideration to his spouse, his minor

children, any estates, trusts, or partnerships in which he has an interest or his spouse or minor child has an interest; we also consider him affiliated with any corporation in which he, his spouse, or minor child has more than a 20 percent interest. If he or any of his affiliated persons commits a Sodbuster or Swampbuster violation, not only he but any or all his affiliates become ineligible for federal benefits. The affiliated persons rule can sometimes lead to a severe penalty for a farmer's non-compliance.

Once we have determined who the responsible person is, with respect to a particular violation, we send the bad-news letter. The producer does have appeal rights, of course. The other option he has, under the 1990 legislation, is to appeal in terms of his having acted in good faith -- that it was not his intent to be out of compliance, that he made an honest mistake. If the ASCS decision is in the producer's favor he is subject to a graduated payment reduction. The reduction is commensurate with the severity of the violation.

It is necessary to distinguish between HEL and wetland. With respect to HEL, if the producer for some reason is not following the plan and has exhausted all appeal rights and options with the SCS, it is necessary for the ASCS to tell that person he and all affiliated persons are ineligible for federal benefits. At that point he is likely to appeal to our agency. If we see good reason for a good faith determination, we can restore that producer's eligibility minus the payment reduction. For HEL the reduction will be a minimum of \$500; the maximum is \$5,000. Several criteria are used to arrive at the actual penalty. A good faith determination for any producer can be made only once in five years.

In the case of wetland, the procedure is similar. If a producer is in violation and has exhausted all appeal rights to the SCS, again, an appeal can be made to the ASCS. If the ASCS determines that the violation was not intentional, eligibility for program benefits is no longer denied. However, a penalty is assessed, within a range of \$750 to \$10,000; and the wetlands must be restored.

In my judgment the several agencies involved in Conservation Compliance do a good job. The first two topics I mentioned, that is, informing producers of what the law is, and monitoring their compliance, ought not give us a tremendous amount of problems. It should not be necessary to apply compliance penalties often. Because of the value of program benefits, producers cannot afford to risk being out of compliance, by and large.

So I think the real challenge in our agency is to inform producers well, determining what the law is -- and that's not always easy -- getting all rules and regulations straight, and making sure producers understand them. I think that in general if they know what the rules are most will follow them.

SOIL EROSION CONTROL AND WETLANDS PRESERVATION:
SCS's ROLE

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I am honored to participate in this seminar and to review my agency's role in soil erosion and wetlands preservation, but I would like to broaden my topic to include care and use of all our soil and water resources.

Recently, the Soil Conservation Service has spent most of its time and resources complying with mandatory programs such as the Food Security Act of 1985 and the Food, Agriculture, Conservation, and Trade Act of 1990, putting the primary focus on erosion control. We recognize that our role has to be stronger in a broader range of conservation and environmental issues. It is obvious that addressing only one segment of our natural resource base -- the soil -- will be inadequate.

I feel strongly that we can use our soil and water productively and still care for it. Conflict between production agriculture and good stewardship is not necessary. They can be compatible; but to make them so requires intensive management. The role of SCS in this regard is correctly stated in terms of our agency mission, which is "...to provide leadership in the conservation and wise use of soil, water, and related resources through a balanced, cooperative program that protects, restores, and improves those resources."

How do I perceive the role of SCS in the future? Let me share a few of my thoughts and observations with you.

The concept of Conservation Compliance as a part of commodity programs is here to stay. Compliance appears to be expanding to involve water quality more than previously, and will likely do so further in future legislation. This becomes a very real test for those involved in agriculture to demonstrate that they can responsibly manage their resources voluntarily. If they fail, the result will be strict regulation.

Many persons feel that if there is to be a "regulator," SCS should be deeply involved in the process. This feeling stems from producers, who like the situation wherein SCS has local offices, a partnership with Soil and Water Conservation Districts (SWCDs) made up of local people, a familiarity with local agriculture, and common sense.

Such a regulatory role is, and will be, uncomfortable for many SCS employees, who are strongly oriented toward the voluntary

approach and getting things accomplished through partnerships. It would also be a strain on many landowners, who have welcomed SCS in the past, but who might -- for lack of a better term -- "lock their gates" to SCS in the future.

I believe producers feel a moral, ethical responsibility to care for their soil and water. This belief is strongly shared by the Chief of the Soil Conservation Service, Bill Richards, and is used as a guiding principle by him as he refines and defines SCS's role in the future.

SCS must actively build stronger communications with other conservation and environmental groups. Our agency, in partnership with local SWCDs, represents both agricultural and environmental values. SCS, through SWCDs, has the ability to help land users achieve economic and environmental goals by the way they manage their land.

SCS is a multi-resource (soil, water, air, plant, animal) agency. As such, it must broaden the groups with which it works. Because of its involvement in both traditional agriculture and natural resource issues, we can effectively be part of and facilitate the efforts of all organizations striving to achieve an optimum production-environmental balance.

SCS must provide stronger technical leadership to develop and implement USDA programs. One specific example is the emphasis currently placed on "T." The concept of T, which represents the soil loss tolerance as measured by the Universal Soil Loss Equation, is designed to be an "indicator" of soil loss. I emphasize the term indicator because T contains many judgments and estimates. While T is the best tool currently available to measure soil loss, it is not precise enough to be site specific or to be the sole basis for determining eligibility for financial benefits from USDA programs.

SCS, being a multi-resource agency, must facilitate federal, state, and local partnerships that provide technical and informational assistance to help land users develop total "resource management systems." Again, I refer to resource management systems that include combinations of conservation practices of benefit to plants, animals, air, soil, and water.

As I stated earlier, the focus of SCS in recent years has been on highly erodible cropland. In many counties much work is still directed toward our grassland, forest land, and to a lesser extent, our urban land resources. As we work with individual landowners, we in SCS must get back to discussing the benefits of good conservation practices -- not only the way they control soil erosion, but also the way they relate to water, air, plants, and animals.

We often hear it said that water will be the issue of the 1990s. I agree, because the whole area of water quality and quantity is gaining public awareness.

Water quality will focus on preventing pollution. In many cases this will entail using enhanced management of agricultural inputs and employing the traditional soil and water conservation practices we have advocated for many years. The role of SCS will be significant in helping land users implement these concepts.

Updating the 1938 Missouri State Water Plan is critical. The Water Resources Law of 1989 charged the Department of Natural Resources (DNR) with developing a new State Water Plan. It is our intention in SCS to work cooperatively by sharing our technical resources with DNR and other agencies.

We must have an accurate inventory of our state's groundwater and surface waters. Information about the quantity, quality, and demands for water must be readily available to decision makers. We must have an institutional procedure to identify and assign priorities for protecting water and developing projects.

Local people need to be involved in a partnership with state and federal interests to assure that regional differences and priorities are considered.

Concurrent with these activities, we must increase technical assistance to land users to help them manage and efficiently use water, particularly water for irrigation.

SCS is deeply involved in providing technical assistance to develop and install various components of animal waste management systems.

Utilizing animal waste as a resource and protecting our natural resources without unnecessary economic impairment of the industry also is critical!

We must strengthen, through research and plant evaluation, our understanding of how plants utilize their nutrients, as well as how we convey this information to producers in conjunction with the technical assistance necessary to implement these techniques. We must address all points that relate to movement of nutrients and pesticides.

Because of the workload, SCS must work harder to empower the public sector of agriculture. A recent survey of Missouri farmers indicates that approximately 80 percent of those responding rely heavily on local dealers (agribusiness) for information regarding conservation tillage.

While agriculture as a whole does a very good job of managing its inputs, SCS and the Land Grant Institutions have a strong role to play in assuring that agribusiness and agencies communicate the same values of soil and water conservation correctly to producers.

We in SCS simply cannot be all things to all people. Nor can we get very far removed from the concept of providing one-on-one

technical assistance to producers, particularly in terms of assuring both the producer and cost-share agencies of a quality conservation practice. We must multiply our efforts by working with other agencies and private industry, a direction we have already charted and will follow in the future.

Based on SCS status reviews covering, to date, five percent of Conservation Compliance plans, 98 percent of producers are making satisfactory progress in implementing their plans. We need to understand the reasons why the remaining two percent have chosen not to apply their plan. We cannot automatically assume the conservation practices the producer chose were later regarded as too restrictive, lacking enough flexibility as to methods by which to reduce soil erosion to acceptable levels. It is important to note that 98 percent applying their conservation plans represents a major commitment by producers, landowners, and private and public organizations. While much remains to be done, I am proud of the way Missouri producers have cooperated thus far.

We must continue to strive for methods of managing and caring for our soil and water in a manner that does not unnecessarily impair our ability to produce food and fiber competitively.

I feel positive too about agriculture's progressive efforts to use chemicals responsibly. Projects such as "Prescription Farming," an experiment in the Bootheel that utilizes Geographic Information Systems, Global Positioning, and refined machinery calibration, represent giant steps toward balancing production agriculture with proper care for our soil and water.

SCS has been involved in these projects and looks forward to supporting the development and refinement of advanced technology.

Regarding wetlands, we need to be creative and responsive to change. The use of a "one-stop-shop" for producers to get approval to make changes to land carrying a wetland designation is a specific example. If it is the public's wish, SCS can serve producers in this role. We must be creative in focusing attention on the benefits of wetlands, especially their ability to serve as water purifiers.

As you are aware, the Wetland Reserve Program was funded for the first time in fiscal year 1992. The first sign-up for participation in this program is scheduled for the spring of 1992 in five pilot states.

Many persons think Missouri should be one of the five pilot states, and they are working actively to have our state included. If they are successful, this will be an opportunity for landowners to receive compensation for restoring converted wetlands, if they agree to protect restored areas with easements.

Only time will tell if Missourians are willing to grant easements. The whole concept of easements for participation in

various publicly funded programs will be tested more and more. The public ultimately will have to decide if easements are a realistic condition to impose.

I believe our most effective method of operation will continue to be building partnerships, and working cooperatively with public and private organizations. I believe in the adage, "If you don't worry about who gets the credit, anything is possible!" Together we should concentrate on providing the highest quality technical assistance we can to the Missourians who are managing and caring for their soil and water resources.

I foresee the natural resources of our state and nation as benefitting from increased efforts to manage them carefully and use them effectively. As world population increases, so will the demands for food and fiber. Also sought will be a quality of life that can only be derived from a safe environment. Time will prove that the actions we are taking today are correct and timely.

IMPLICATIONS FOR MISSOURI AGRICULTURE - I

Dennis Fulk
Farmer, Platte City, Missouri

Wetlands, although not discussed much thus far in this seminar, are the conservation issue that concerns Dan Jennings and me the most. We both farm river bottoms. The Mississippi river is causing something of a wetlands problem for him and I am in the Missouri River basin. But I have some HEL (highly erodible land) and I will discuss HEL issues and leave wetlands to Jennings.

I think two words best typify the farmer's feelings toward Conservation Compliance. They are frustration and confusion. Most farmers feel as though it is being done to them instead of for them. Farmers used to come to the SCS office in anticipation of getting help. Now, in many cases, they see SCS as an adversary. That is not the relationship any of us prefer.

I offer three ideas about an awakening process for farmers relative to Conservation Compliance. The first is realization. Farmers are finally beginning to realize that the problem -- if we call it that -- isn't going to go away. Many thought the regulations would be loosened or done away with and that by the time they were due to go into effect no problems would be encountered. Now, though, in most cases farmers have come to accept the situation.

In some other cases, when the SCS person came out to go over farm plans, some farmers did whatever was necessary to get a plan. If it would not go into effect, they reasoned, there was no cause for concern as to what a plan showed. Sign it, and worry later, was the attitude in these cases. Those farmers now recognize that they will have to follow through. The only alternative is to stay out of programs. For some farmers even that is not an option. For example, the FmHA wants its borrowers to participate in programs, and so do many private lenders.

Platte county, the one in which I am an ASCS committeeman, is increasingly urban. We surround the KCI airport. We have problems such as those with investors who buy property with no intention of ever doing any conservation work. We have the 20-acres-and-a-horse type of farm. Many of these non-traditional kinds of farms create problems for the ASCS.

We have a number of tobacco farmers, who farm the more erosive upland. Tobacco does not hold the soil well. Conservation Compliance is difficult for many of them.

Another problem we have, and one that affects me as I farm land owned by developers, is that of offsetting compliance. If a landowner says he will not spend money for conservation, a farmer can run into difficulty even on his own property. Often the farmer must either give up that developer's land, or drop out of all programs.

A second point could be called backlash -- the circle-the-wagons type of approach. When farmers come in and find that they have to "live with this thing," the first reaction is defensive. "Why are you doing this to me?" The attitude creates stress not only for the farmer but for ASCS office personnel, who are not unsympathetic but are committed to carrying out the programs.

The farmer's next attitude often is what might be called resignation. "We have to live with it so we will get along as best we can."

With respect to implications for Missouri agriculture, the biggest implication I see is CHANGE. People don't like to change. One unattractive change is an increase in cost. Cost will be greater for mechanical practices -- waterways, terraces, and such. If a farmer turns to no-tilling he must buy a drill or other equipment. Chemical costs are higher with no-till. Even "dirty" farming (minimum tillage) may call for new equipment.

In some cases it may not be economically feasible to crop some of the HEL land. It might be grazed, but if lots of farmers do that, what will happen to livestock prices? The options are something of a mixed bag. For my part, I chose to put Christmas trees on some of my HEL property. My location is favorable for doing that.

No-till carries the risk that the additional chemicals used will lead to clean water trouble. How can we balance the fact that we will have to go to no-till to meet soil loss requirements with the chance that the greater use of chemicals will lead to clean water problems? We can hope that the reduced erosion will keep the chemicals in place but we can't be sure that will always be the case.

An issue in farm plans is flexibility. It will be necessary to work out accommodations between the plans and what farmers find they are able to do. If, for example, bad weather or some other happenstance makes it impossible to seed small grain according to plan, some adjustments will have to be made in order for the farmer to stay in compliance.

In summing up, farmers are looking at Conservation Compliance in terms of how it is going to affect them economically. That is their big concern. Groups outside agriculture do not see that as the first problem or issue. They want to complete their agenda with respect to soil conservation. If some farmers go broke, they feel regret but that is not of as much concern to them as it is to us who are involved in agriculture. It is not their focus.

Those of us who are in agriculture are going to have to stay active in the political process. I don't mean to sound confrontational; the goals of outside groups are not necessarily bad and we need to work with those groups. But we must try to get them to focus on a broader range of issues.

IMPLICATIONS FOR MISSOURI AGRICULTURE - II

Dan Jennings
Farmer, Morehouse, Missouri

I will address most of my comments to wetlands. Just about everyone on this program thus far has dodged addressing the wetlands issue. Let me go back a bit. In 1985 when I was serving on the Missouri state ASCS committee the 1985 law was being written. We heard about Sodbuster and Swampbuster, and I thought the boys in the hills would have problems. I didn't give much thought to Swampbuster because I thought I knew what a swamp was. Preserving them would be easy. Later, when determinations were made we were surprised to learn what a wetland was, under terms of the new 1985 law.

I offer first a couple of observations about HEL. I continue to believe that farmers holding CRP contracts will have an opportunity to renew those contracts at some figure as they expire. I don't know whether the payment rate will be \$25 or \$65 or some figure in between, although I'd guess it to be closer to \$65 than \$25. I believe farmers will continue to implement their farm plans under Conservation Compliance as long as it is economical to do so -- that is, as long as the cost of carrying out the plan does not exceed the benefits that will come back. That is simple economics.

It follows that as program benefits go down, the point will come where some farmers will find the cost of implementing their farm plan to exceed the benefits. But I still believe that farmers in general will continue to operate with reduced tillage because the equipment they are buying is designed for that purpose. It makes economic sense to work the ground less than before, rather than to work it a lot. Chemicals are of concern, but I believe we will leave more and more residue on the ground. We are doing that now.

On HEL, the farmer at least has a way to comply. The rules may not be what he wants, and may be expensive, but "there's a way." But a farmer who has wetland finds there is nothing he can do. Maybe he has to preserve it for ever and ever. Among the concerns farmers have about wetlands is the number of agencies that regulate them. I know about these six: SCS, ASCS, Fish and Wildlife, Army Corps of Engineers, Environmental Protection Agency, Department of Natural Resources. All have jurisdiction over wetlands.

It's a nightmare to try to work with so many. We learn terms that we never heard before. PC (prior-converted) -- this one ended up being good. "Farmed wetland." I always thought a wetland was either that or was farmland; it couldn't be both. If a farmer is farming wetland, he can continue to farm it but he cannot "manipulate" it. The Army Corps of Engineers says he can continue to farm

it according to "normal farming practices." I asked a group of Corps officials if they could define normal farming practices. "No," they said, "but we know them when we see them." "What about land grading?" I asked. One man said, "Yes, it's normal;" another, "No, it is not." In Missouri the Corps operates in five districts and each operates independently.

A farmer having W land (wetland) cannot manipulate it: he is not permitted to drain it, plant trees on it, or build a house on it. All he can do is continue to own it. Farmers in my area are in a state of disbelief that property they own has been taken from them without any compensation and without due process of law. They are expecting some kind of corrective action because this sort of thing cannot occur in our country; such is their belief. For my part, I am hoping they are correct.

I understand that some corrective action may be underway. Some redefinitions appear to be in prospect.

A farmer in Shelby county, Missouri, had a wetland and agreed it was a wetland. He seeded it to fescue. He seeded a bushel of wheat per acre as a nurse crop. It was called a commodity crop and in violation. Appeals were denied and the farmer lost \$30,000. I could tell you other war stories. In another case of accidental seeding of rice on a little reclaimed wetland the Soil Conservation Service was able to reverse the original decision and I have to say that the SCS has been more understanding than other agencies we have tried to work with.

I still think there is purpose in preserving genuine swamps but the whole matter has gone far out of bounds.

Among other concerns to us in the Bootheel are those of water quality. We have a shallow water table. We are concerned about polluting it with chemicals and fertilizers. We are interested in doing a better job of applying materials that carry a risk to water quality.

Three other issues are a concern of mine, as they relate to environment. For example, I don't know what to do with used motor oil. There is opposition to burning it. I don't know what to do with used tires, or with empty herbicide and pesticide containers. They are legitimate concerns that we have. We want to solve these problems properly. We hope that some manner of disposal will be found that is also economical and reasonable.

IMPLICATIONS FOR MISSOURI AGRICULTURE - III

Bob Hitzhusen
Director, National Legislative Programs
Missouri Farm Bureau

I am glad to present some of the Missouri Farm Bureau's viewpoints on the environmental movement and the consequences for agriculture. I will offer a few personal observations on the current status of the relationship between the environmental and agricultural communities, and, secondly, I will comment on some of the public policy strengths and strategies for agriculture.

Although my personal preference is to choose diplomacy and compromise over direct confrontation whenever possible, I'm afraid the current relationship between the environmental community and agriculture is often adversarial in nature. One explanation for this is the communication gap that exists between these two groups of interests. In the 1985 and 1990 farm bill debates, it was evident that the environmental groups were organized to play a greater role than before in agricultural policy making. However, it appeared that only a relatively small number of specialists in the environmental community were capable of discussing agricultural policy goals in any depth. This made it extremely difficult for local, state, or even national agriculturally based groups to carry on a meaningful dialogue with environmental leaders.

Perhaps this situation will improve in time as environmental groups develop a broader range of leaders with knowledge in the agricultural field. In the meantime, it appears that agricultural and environmental leaders will continue to take their positions directly to Congress and rely on the political process to produce final policy compromises acceptable to both sides.

As acceptable political solutions are sought, I believe we in agriculture must be careful not to surrender our right to play a major role in the environmental policy arena. Much as environmental groups have taken steps to become involved in agricultural policy setting, we in agriculture must take steps to become more effective participants in environmental policy debates.

We must not waste time and energy complaining about the recent emergence of the environmental community in the setting of agricultural policy. Many diverse groups are now interested in not only food price and supply but also in food safety and the environmental consequences of our agricultural practices. These "new" players in agricultural policy-making are here to stay. It serves no useful purpose for agricultural leaders to argue or even wish for a return to earlier days when agricultural policy decisions were made by farm organizations, commodity groups, agribusiness leaders, and members of Congress from farm states. Instead, we must recognize

that we have arrived at a new era in farm policy-making and learn to operate more effectively in that new arena.

We in agriculture often complain about a slippage in our political clout because of the declining farm population. And yet with the tremendous positive public image farmers maintain, there is every reason to believe that the farm community can continue to be a powerful force today as an effectively "organized minority."

One of the ways farmers can increase their political clout is to use a more sophisticated and aggressive public relations approach to telling their story. In the Alar controversy the environmental community left no doubt about its skills in manipulating public opinion. Once public opinion is sufficiently influenced, public policy makers usually follow close behind. It is no longer effective to attempt to influence legislative debates simply by communicating with members of Congress or other public officials. There are encouraging signs that agricultural leaders are starting to understand this message. The animal rights referendum in Massachusetts some time ago was a good example of agriculture's growing sophistication and greater effectiveness in today's public policy arena. Agricultural groups from across the country pooled their resources to conduct a very successful campaign in Massachusetts which succeeded in completely reversing public sentiments about the wisdom of government regulation of animal agriculture.

With public perceptions playing such a major role in determining public policy, we must develop effective ways to tell our story of an abundant and safe food supply to the American public. Again, I see encouraging signs that farmers are beginning to learn how to do just that!

We must seek a reasonable balance between economic and environmental interests. In order to arrive at a reasonable balance, I believe we will need to evaluate each issue, bill by bill or even provision by provision. Then we must actively support those ideas that are reasonable and workable; compromise in areas that are not do-or-die for our industry; and finally, draw the line and fight on those things that are so excessive or unreasonable that they threaten our economic survival.

I concur with others at the seminar who have called attention to the emergence of environmental groups as important new players in the farm policy arena. But farmers also remain a solid political force and may even be showing signs of gaining clout as they learn to use more effectively the modern day tools for influencing public opinion, as well as public policy.

THE POLITICS OF CONSERVATION POLICY

Peter C. Myers
President, Farm Credit Council
formerly Chief, Soil Conservation Service,
and Deputy Secretary of Agriculture

The intensity of the heat of the "politics of conservation" has been turned up rather dramatically in Washington in the past several years. In 1984 and 1985, in preparation for the 1985 farm bill, the Reagan Administration and particularly John Block as Secretary of Agriculture, the Congress, and several environmental and conservation groups played an important role in formulating the conservation sections of that legislation. These same groups plus the various agricultural commodity groups, the general farm organizations, the NACD (National Association of Conservation Districts), and the IAFWA (International Association of Fish and Wildlife Agencies) were players in the conservation provisions of the 1990 farm bill.

The environmental groups -- Audubon Society, Sierra Club, National Wildlife Federation, and National Resources Defense Council -- feel that they are now in a much stronger political position regarding their ability to affect policy for agricultural conservation and water quality. In truth, they are now key players in this arena. They rank alongside the traditional farm groups such as the American Farm Bureau Federation, other general farm organizations, and the various farm commodity organizations.

I won't attempt to include the wilderness, public lands, mineral exploration, or fish and wildlife conservation issues in my remarks that follow, because to do so would broaden the discussion field considerably. Some of these issues and groups intertwine with soil and water conservation agendas, programs, and players, but the focus of this seminar is agriculturally related and I'll limit my remarks accordingly.

In preparing for this presentation, I visited with Bill Richards, Chief of the Soil Conservation Service (SCS) and Jim Moseley, USDA Assistant Secretary for Natural Resources and Environment. I have included their thinking in many of my remarks, especially what they foresee as the future direction of conservation policy.

Currently, the nation's farmers and ranchers are in the fifth year of conservation programs from the 1985 farm bill, which include Conservation Compliance, Sodbuster, Swampbuster, and the Conservation Reserve Program (CRP). These programs plus those enacted in 1990 are semi-regulatory in nature and have helped to motivate conservation at the farm level. The general feeling is that 10 years may not be enough time to activate conservation by

all owners/operators and that if we get 80 percent compliance on HEL (highly erodible land) we should consider the compliance programs to be a success. I'm sure not all groups would agree with that statement, but the fact is that we will always have a certain percentage of farmers and ranchers (for varying reasons) who choose not to be pushed into soil and water conservation. The question is what do we do with the non-cooperators, who will just opt out of federal farm programs, and still be fair to the vast majority who will be conservationists. The environmental groups, and maybe OMB (Office of Management and Budget), are pushing for 100 percent compliance and SCS chief Bill Richards says that his agency will be asking that all farmers who are required to complete and implement farm conservation plans do so on schedule.

Complicating voluntary compliance with the soil conservation programs is a real resentment by producers against Swampbuster and the revised definition of agricultural wetlands. Add this to the fact that there are some mad farmers in the Palouse area of Washington and Oregon and in the four corners area of Kansas, Iowa, Nebraska, and Missouri. They are angry because they are having a hard time making their farm plans conform to SCS requirements without using terraces and/or no-till. On top of this, SCS personnel in the field, when designing structures for farmers and ranchers, must comply with the Endangered Species Act. Is it any wonder that many farmers are not too happy with additional government involvement in soil and water conservation?

The wetlands definition issue alone has caused policy makers and shapers in Washington some real problems. Disputes began in 1988 when a group of federal agencies -- SCS, EPA (Environmental Protection Agency), F&WL (Fish and Wild Life), COE (Corps of Engineers) -- arbitrarily (that is, without the normal public hearings and comments) changed the wetlands definition that had been written into the 1985 farm bill. These same groups headed by EPA have recently proposed a new wetlands manual with a more balanced wetland definition in it. This wetlands manual is now out for public comment. The process sounds simple, but it is far from that. The environmental groups think the new definition is too lenient, and the president of the American Farm Bureau Federation blasts the definition because it is too rough. The White House even became involved in this issue when the Vice President stepped in and differed with Bill Riley (EPA Administrator) on the length of time that ground has to be saturated to be considered a genuine wetland.

The wetlands issue is spilling over into a private property rights or "taking" issue. Some newly proposed wetlands legislation would call for the federal government to compensate property owners financially when their land is reduced in value because a federal agency has declared it a wetland.

Stay tuned! The wetlands issue is far from resolved. In fact, it will probably be included in Clean Water Act revisions that are due in 1992. However, the conventional wisdom says that

we won't have revised clean water legislation until 1993, because 1992 is a Congressional election year and any new legislation will contain several hotly debated issues.

Water quality, in the opinion of many folks, will be the driving issue in any clean water legislation. Some of the key players on these issues are George Miller of California, Chairman of the House Committee on Interior and Insular Affairs, John Paul Hammerschmidt of Arkansas, and Bill Emerson of Missouri, who are members of the House Public Works and Transportation Committee.

In fact, Bill Emerson is one of the few Aggies on these committees that will have jurisdiction over issues which affect the use of private farm and ranch lands. On the Senate side, the Environment and Public Works committee will try to retain jurisdiction over the water quality and wetlands debate. Needless to say, lobbying will be intense, with environmental groups on one side and the farm groups on the other, and the confused public in the middle. The House Agriculture Committee, which includes Missouri's Tom Coleman, Harold Volkmer and Bill Emerson, will try to reach over into the water quality and wetlands issues, but will probably run into jurisdictional problems because those issues are not considered to be in the Agriculture Committee's domain when a farm bill is not being drafted. Even at farm bill legislation time, though, water quality will probably not be considered an Agriculture Committee issue.

As the Congress considers water quality legislation in the near future, and soil conservation in the next farm bill (1995), the real questions are not whether we will have legislation in these areas, but whether the enforcement will be semi-regulatory (denying benefits), or punitive, and who will enforce the regulations.

In reality our voluntary approach to conservation is at stake, and how farmers and ranchers perform in the next few years under current laws will make a difference to the decisionmakers, and give the lobbyists for each side ammunition for their causes. The environmental groups do an excellent job of raising funds from the general public for these causes and are adept at influencing Congress. They have found sympathetic ears in many of the "hill" staff who work for key Congressional committees. In general these Congressional staff persons are bright and hard working and exert a lot of influence on their respective bosses' final decisions and votes.

When we look at the key Congressional players in Washington we cannot overlook the various members of the House and Senate appropriations committees. Foremost in this area is Congressman Jamie Whitten from Mississippi, who is a master at legislating via the appropriations process. Add to this list the name of Dale Bumpers from Arkansas, who will soon be chairman of the Senate Agricultural Appropriations committee, and who is known to have an environmentally inclined staff. Our own Senator Bond is a member of the

Agricultural Appropriations committee. But these players change and the points of power change as long-time Congressional leaders retire and new ones with a different staff take their places at the helms of key committees or subcommittees.

The reason the Appropriations committees and their staff wield so much power is twofold: first, their colleagues must come to them to get projects funded in their respective state or Congressional districts; secondly the Appropriations committees have learned to legislate through the appropriations process. Different types of enacted legislation can sit on the shelf unused because the laws have not been funded; or the Appropriations committee can instruct a federal agency not to expend any funds to implement a certain program.

The process for enacting a specific piece of important legislation (such as Clean Water) normally would begin with hearings in Washington and in the country to give interested parties an opportunity to present their views on the specific issue. Then the Congressional subcommittees having jurisdiction in both the House and Senate would hold mark-up hearings to begin actually drafting the bill, which by then will have been assigned a number (separate numbers for the House and Senate). At these mark-ups only committee members may debate the issues, except for an occasional requested appearance by an administration official who serves as a technical resource person only. These hearings and mark-ups are not always held at the same time or even in the same year in the House and Senate, depending on the desires of the respective subcommittee chairmen. The bill will then be passed on by the subcommittee and sent to the full committee of jurisdiction for debate, any further amendments, and a vote.

Sometimes issues surface in more than one committee of either chamber and will have to be reconciled into one bill before they are debated and voted on by the full House or Senate.

When the House and Senate pass their respective bills on Clean Water, a conference committee made up of key members of the House and Senate will get together to reconcile differences in the two bills and then return a single piece of legislation to the House and Senate. Both houses must vote on it positively before it can be sent to the President for his signature, to make it the law of the land. Or the bill coming out of Committee can be defeated in the House or Senate or vetoed by the President but nothing of that nature is likely in the case of the Clean Water Act.

There are many pushes and pulls by interest groups and lobbyists as well as the Administration all through this process, and many changes may be made in the legislation as it travels its slow route to becoming the law of the land.

Let's turn from the process and look at the immediate future of soil conservation and water quality legislation. I think -- and I emphasize think, because it's hazardous to predict future

Congressional action -- that legislation in these areas will continue to be semi-regulatory (incentive, and voluntary). The Corps of Engineers will continue to have some punitive authority over waters of the United States, but their "actions affecting waters" definition needs to be restricted as to what it actually includes. SCS will continue to be the lead agency on technical assistance with the Agricultural and Stabilization Service (ASCS) and EPA being the enforcers and providers of financial incentives.

As I noted earlier, much will depend on how private landowners and operators react to water quality (the driving force) and soil conservation initiatives on their respective farms and ranches. Will they respond to current and future semi-regulatory and voluntary programs or will it take punitive actions to force them to save soil and improve water quality on their own property?

I am concerned that most rural landowners don't realize how close they are to losing more of their individual private property rights. They don't understand how skillfully the various public interest groups use the federal courts, the Congress, and most of all public opinion to achieve their objectives.

The interest groups' objectives in this case, improved water quality and soil conservation, are important for the future of our country. The difference of opinion here is not whether we should strive to achieve these objectives (we should) but how we achieve them. Time, rural landowner attitudes, public opinion, and the political process will determine the route we take to conserve and enhance our God-given natural resources on our private lands.

FARM POLLUTION LIABILITY ISSUES

Stephen Matthews
Professor of Agricultural Economics
University of Missouri-Columbia

First of all, I suggest we do not get up tight about the legal complications of environmental concerns. The world will go on turning irrespective of whether environmentalism has a capital E.

We have long had civil liability -- one's neighbor can sue him and make all types of allegations. We are fairly familiar with this; lawsuits are not something new. Whether what a property owner does has a negative effect on someone else has long been a legal issue.

An owner of a big hog operation can be sued for polluting air or water. During the last decade we have seen a proliferation of statutes called Right to Farm. Relative to livestock operations this might be called the right to pollute. The law has been amended from time to time and the present statute gives a considerable but not absolute latitude to pollute for the livestock producer.

The point I make is that practices in livestock raising, or use of chemicals in farming, are always subject to allegations. Whether or not the courts will allow damages to be assessed cannot be known in advance and the process is highly complicated as well as expensive. There is a little shelter to the farmer -- the alleged transgressor -- in the fact that lawsuits cost money and unless the alleged harm is substantial it is unlikely that a suit will be filed. So there has long been a degree of liability but no great amount of litigation.

This built-in protection has changed considerably the last 15 or 20 years. In place of civil litigation -- that is, private parties suing each other -- now we have professionals on the payroll. In enforcement of government regulations a taxpayer-paid group of persons has the authority to conduct investigations. Staff persons can ask to come on a farm to check for pollution, causing the farmer some anxiety; they can establish standards requiring that a permit be obtained before a particular livestock confinement lagoon can be put in place; and they certainly can respond to complaints received from persons driving by on the road. Farmers put it that there is now a group of persons that might be called policemen in that they carry out society's desires.

The regulations were developed in a democratic process. The agencies themselves were created by elected legislators. The agencies must follow due process requirements. They hold public hearings. But they have responsibilities and considerable authority. So it is that over time attention has shifted from the

possibility of a neighbor's suing under nuisance or trespass law, to the network of government regulations and their enforcement.

How far will that go? That question is eventually answered by the courts. If a statute is challenged as to constitutionality, the courts eventually rule.

If we recognize that a farmer has rights to his land, and society wants to establish rules regarding use of it, as a general principle society has to pay for the change. Consider the Conservation Reserve: could we have gotten the same result by regulation without paying for it? Or wetlands: in the context of the definition of wetlands, at what point does the government agency, or the legislature, or both, go too far? At what point can they be said to be taking property without due process and if so, are they then required to pay for it? A further note is that when a government agency must pay for an action it takes, the enthusiasm for taking generally diminishes. It may not be a matter of desirability, but of the limits to action when a cost is involved.

The conclusion follows that fear of environmentalism -- that it will overtake us and put us all to the wall and take away all our property rights -- is rendered unwarranted simply by virtue of the high cost that would be involved. Secondly, many of the current or proposed activities are subject to constitutional challenge.

If government is to take private property the rule of inverse combination applies. It must first be established that the taking is for a public purpose, and just compensation must be paid. Zoning is sometimes referred to for comparison and said to be different. In zoning, the government's concern for the public welfare, health, and safety leads to actions carried out directly or indirectly by elected officials. Much of the protection lies in the elective process.

Inverse combination is a principle that farm organizations or other groups likely will use when participating in challenges to some restrictive laws or regulations. The outcome will likely amount to making the terms more reasonable or acceptable than they may now be perceived to be. By way of a parallel, during the farm crisis of the 1980s it was supposed that the Farmers Home Administration was a creditor that could readily foreclose, taking over the collateral and collecting the debt. It could do so, it was assumed, in the same manner as a private bank. The actual experience was that when a government agency is the creditor, the borrower has more protections than otherwise -- more due process protection of property rights. Furthermore, if foreclosure rules are regarded as too onerous, Congress will sometimes rewrite them.

Who is the real "enemy?" Who is the enemy when the concern is about farm pollution? The idea that a neighbor can be an adversary is still valid. Weed control is an example. The neighbor can be genuinely concerned that weed seeds are wafted over on his property

and grow in his garden or his lawn. Yet in terms of civil liability there is no liability when weeds go onto a neighbor's property -- provided, in the case of a farmer, that normal farming practices are being followed.

This is in line with the "clean hands" principle in old common law. Some harm may be done, but when the person causing it has the clean hands of following normal husbandry practices he is not held liable. This extends to conforming to newer standards of husbandry practices. If a farmer does that, he presumably avoids liability. He certainly is not subject to punitive damages.

So one's neighbor may be the so-called enemy but neighbor-to-neighbor relationships have generally worked out well with minimum instances of liability.

The newer challenge, of course, is not something such as migratory weeds but how chemicals are used, including handling the containers. In this respect common law is indeed being challenged. But to date the farm cases do not show that the farmer is going to be held liable.

A great many of the concerns for liability now come from government regulations, which are very much in the political arena. A second "enemy" is insurance companies. Until a few years ago insurance policies were thought to provide adequate protection against liability for pollution. But insurance companies got together and said, "Well, now that we are getting some pollution cases, even though we are not having to pay out damages we are having to pay to defend." The insurance companies have gotten around that cost to a major extent by focusing on the word, "accident." We can ask, "Insurance is for accidents, isn't it?" By inference, it is only for accidents.

Typically, an insured person has bought off a lot of his concern for potential liability by virtue of holding an insurance policy. Farmers may have had such a confidence regarding liability for pollution. Yet most of the policies I have seen, held by farmers in the 1990s, have exclusions. They have no coverage for pollution. One traditional reason for the exclusion is that pollution was not considered to be an accident. It was considered to be gradual. In my opinion, if a farmer has chemicals in his pick-up and spills them in an accident, he is covered. But in the context of spreading manure and herbicides, and chemical seepage from normal farming practices, he does not have coverage; and the insurance companies have gone extra far to make sure he doesn't have coverage. They don't even want to join in defense. Thus a farmer may be innocent yet spend the value of his property in order to prove that.

Another person who is under the gun, although maybe not an enemy, is a banker. Why might a banker be called an enemy? Most of us don't have a wad of money, so if we want to buy a farm we go to a banker. The banker gets involved in an environmental context

because of what is known as an environmental audit. These days, a banker is likely to insist on having an audit made by an environmental assessor, called a license-approved audit. Most audits cost at least \$15,000; on a large parcel the cost may be as high as \$100,000. The specialists must be informed on all the government rules, and a lot of professional time is involved.

The bankers are running scared. They are told they have to get the audits. The bank examiners bring pressure on them to do so. My point is that a high cost is born immediately by the principals, and indirectly by society. It is possible that some adjustments or corrective steps will be taken when the size of that cost comes to be known.

Another possible enemy is the independent contractor. In general, if a farmer engages an independent contractor to apply his chemicals, he can avoid liability. But in the Bootheel I understand that herbicide or other chemical is sometimes applied by air. Some of the applied chemical can drift onto a nearby field and cause damage there. It turns out that the rule basically is that if a farmer hires an independent contractor to make the aerial application, and harm is done, he, the farmer, remains liable, because the service he contracts for is super hazardous. In other words, it is not possible to avoid liability for some action that is ultra hazardous by hiring someone to do it and saying, "It's not my fault, it's the applicator's." Where the activity is ultra hazardous, risk cannot be delegated and the common law rule does not apply.

If a farmer engages someone to spread manure and he spills it to someone else's dislike or inconvenience, is the farmer liable? If he just hires an individual to do the spreading, he definitely is liable. If he contracts with an independent contractor, he likely is not. Spilling manure is not ultra hazardous.

What about spreading chemicals -- directly on land, not by air? The legal point here is that rarely will another individual bring suit; the issue converts to possible violation of government rules and regulations.

In conclusion, I suggest that the word environmentalism is something that we are gradually learning to live with, legally and otherwise. Society is concerned about environmental issues. Most of the major concerns do not affect agriculture per se. One of the restraints on aggressive action, whether government regulation or the bankers' audits, or many other avenues, is cost. Legislatures have shown a capacity to put caps on costs, in many forms of litigation; and we may expect a similar kind of response with respect to environmental regulation.

LIVESTOCK WASTE -- NEW ISSUES FACING PRODUCERS

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Environmental issues of concern to livestock producers in the past have dealt primarily with point sources of waste, and the effect of the nitrogen in the waste on groundwater resources. Predictably, waste management systems to address these concerns were designed so as to focus on minimizing nutrient loss to groundwater, with little concern shown for nutrient loss (such as ammonia volatilization) to the atmosphere.

New issues and concerns now facing producers include potential contamination from non-point sources, the impact of phosphorus on surface waters, and the effects of compounds such as ammonia and methane volatilized to the atmosphere. New system designs will seek to minimize contaminant release to the atmosphere as well as minimize nutrient loss to groundwater.

Phosphorus Limits in Land Application of Waste. Traditional land application of manures based on nitrogen content typically results in overapplication of phosphorus. If soil conditions dictate consideration of a phosphorus rather than nitrogen limit, more land area will generally be required to assimilate the waste. The following table outlines the relative land area required with a phosphorus versus nitrogen limit.

Table 1. Relative Land Area Required to Dispose of Livestock Waste with Phosphorus Versus Nitrogen Limit

Crop Seeded in Disposal Area	Land Area Ratio			
	Swine		Dairy	
	Slurry	Lagoon	Slurry	Lagoon
Corn	1.5	0.9	1.3	2.9
Fescue	1.2	0.8	1.1	2.4

In disposal of swine waste by means of a lagoon, the land area requirement is nearly the same irrespective of whether phosphorous or nitrogen is the limiting factor. In the other instances shown here, more land is required where phosphorous establishes the limit. The ratio is as high as 2.9 for lagoon disposal of dairy wastes on corn land.

In general, invoking a phosphorus limit will significantly increase the amount of land a producer must have available to receive livestock waste.

Atmospheric Considerations. The effect of discharge of potential contaminants to the atmosphere will be scrutinized more closely in the future. Ammonia, methane, hydrogen sulfide, and particulates, all typically produced in livestock production systems, are addressed in the Clean Air Act. Precedent suggests the possibility of fees being assessed to generators of air contaminants based on annual accumulation of emissions. Extensive data on emissions from livestock operations are lacking.

Systems designed to reduce emissions will include more "closed" manure treatment/storage facilities, and possible attenuation of exhaust ventilation air. Such measures will undoubtedly increase the cost of livestock production. Reduced emissions can have other impacts also. Any compound, such as ammonia, formerly discharged to the atmosphere, must be assimilated in land application. For example, elimination of a conventional anaerobic lagoon, which volatilizes about 80 percent of the input nitrogen to the atmosphere, will require about five times as much land as formerly needed in order to assimilate the nitrogen that previously went into the atmosphere.

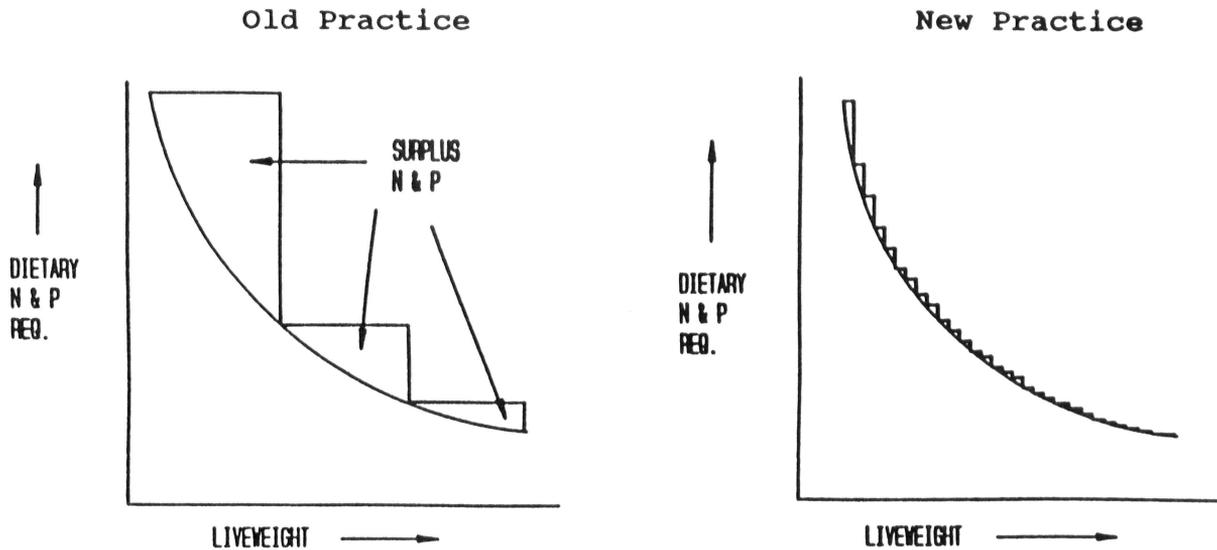
European Developments in Livestock Waste

European experience has shown that many environmental issues of future concern in the United States may already be current issues in Europe. Population density and animal density in parts of Europe are possible indicators of future similar conditions in this country. Hence, watching current developments in Europe may serve as a "window" of future concerns for U.S. producers.

Regulation/Governance of Livestock Waste in Europe. Land application of manure is governed by law in some areas of Europe. This governance is typically based on nitrogen, or phosphorus, or both. In an attempt to address odor emissions in Germany and the Netherlands, distance diagrams are used to determine allowable separation distances between swine farms and urban areas. In Germany, France, and Denmark, allowable swine numbers on a farm are restricted by land available to receive nitrogen. In the Netherlands, starting a new swine farm, or expanding swine numbers on an existing swine farm, is allowed only if the farmer owns sufficient land to receive the manure nitrogen.

European Research to Lower Nutrient Levels in Manure. Research to reduce the levels of nitrogen and phosphorus in manure is receiving much attention in Europe. Experiments using only inorganic phosphorus in rations, or microbial phytase, have resulted in up to a 30 percent reduction of phosphorus in manure. This reduction is highly significant if phosphorus is a limiting nutrient in land application. The following charts describe the results of research on more frequent adjustment of dietary levels of nitrogen and phosphorus to closely match animal requirements as growth proceeds.

Old and New European Practices in
Adjusting N and P in Rations to Liveweight of Swine



The reduction of surplus dietary N and P in manure may be accomplished by more frequent changing of ration makeup, as shown in the chart. In some areas of Europe, producers are required to keep records of manure N and P produced, and may be charged a fee for excess N and P that may occur.

Ammonia Emissions. Ammonia emissions in the Netherlands have been shown to contribute significantly to acid rain. Study has also indicated that most ammonia emissions there are of manure origin. The following data show the relative contribution of different phases of animal production enterprises to ammonia emissions in the Netherlands.

Percentage of Total Ammonia Emissions from Animal
Production in the Netherlands

Animal housing and manure storage	40
Manure land application	50
Grazing land	10

The Netherlands has adopted a political goal of reducing ammonia emissions by 70 percent, to be accomplished by the year 2000. If this goal is not attained, swine numbers in the country will be reduced. Research in the Netherlands has identified some techniques and practices that are effective in reducing ammonia emissions. Frequent flushing of manure from buildings, and storage

of manure in covered or closed tanks, help reduce ammonia emissions. The use of injectors in applying manure slurry, and bio-filters, or air scrubbers for ventilation of exhaust air also are practices that reduce ammonia emissions. An unconventional confinement building called the "deep-litter" or "sawdust" system is receiving much attention. In this system, swine are raised on a litter bed consisting of about 24 inches of sawdust. Manure and sawdust are mixed weekly so that a continuous composting process occurs. The manure/litter mixture tends to self-dry from the heat generated in the composting process. Little ammonia is generated with this system, and there is no liquid slurry to manage.

While developments in European countries can offer insight to potential issues and concerns in the United States, it should be noted that parameters such as animal density, and human population density, may be vastly different in Europe than in our country. Such parameters may strongly influence the degree to which these issues become important in the United States. The following table shows swine animal density in several European countries as compared with Missouri.

Table 2. Swine Density in Seven European Countries and in Missouri

Country	Number of Swine per Square Mile
Netherlands	891
Belgium	489
West Germany	255
United Kingdom	89
Spain	81
Italy	77
France	57
Missouri	43

While animal density per square mile does not depict localized conditions of concentrated animal numbers, the fact that swine are likely to be much more dispersed in Missouri than in some of the countries shown would perhaps suggest that environmental problems with swine production will be less acute than those experienced in some areas of Europe.

Summary

Past emphasis on protection of groundwater will continue with new emphasis being placed on minimizing or reducing emissions of contaminants into the atmosphere. Waste management systems will become more complex as they are designed to provide a higher degree of treatment. Cost of production will increase.

ISSUES INVOLVING FARMERS AND CHEMICAL USE

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I will review primarily the broad issue of why we are in the present situation regarding regulation of chemical use in agriculture, and where I think we will be by the year 2000.

My comments are my personal attempt to present an objective analysis of the pesticide issue. They are the result of 43 years I have spent as a student or professionally in following the developments in modern day pesticides and related problems.

Not In Control of its Destiny

Agriculture is not in control of its own destiny relative to use of pesticides. This is a most difficult point to accept but it is a reality. Public opinion (often misguided) drives politicians who write laws to be interpreted and implemented by regulators who often are not in touch with the real world. I don't know of many bad laws; more often the problems come from regulations written by adversarial groups or the uninformed. Our real task is to assist in educating the public and that is difficult. The positive aspects of agricultural chemicals are not popular for those interested in selling copy or capturing the viewing audience. This issue alone could have taken up the entire time of this seminar.

A few words about the adversarial situation. When Rachel Carson wrote Silent Spring everyone began to focus on the environmental impact of pesticides. The primary pesticides under attack in the 1960s were insecticides. As entomologists we were highly sensitive. We felt we had done an adequate job of looking at pesticide residues; we were incensed. We knew there weren't any problems and for the most part we took an adversarial position with the environmentalists. Over time (in the later 1970s) the agriculturalists (entomologists) and the environmentalists began to work together to assess the benefits/risks of pesticides.

More recently the fungicides and herbicides have come under attack and I am concerned we may be regressing to an adversarial situation again. As agriculturalists we should work diligently to educate our environmental scientists objectively on the benefits and we should also look at the risks as seen through the eyes of the scientists in the health related disciplines. Ask yourself, "How would I determine whether a pesticide is safe for continued use and protect the health of 250,000,000 people with continued exposure to a given pesticide for 40 years?"

This is one case where ignorance is not bliss. I'll come back to health effects later. Let me give an example of what we did 40

years ago because we didn't understand the problem. My first entomology professors spoke of the wonder drug DDT, which could be eaten and also could be used in dairy barns for fly control because a minute residue would control insects. We didn't understand the fate of these residues until years later, and only then did we realize that changes had to be made in pesticide use. Now with the focus on health effects we dare not make the same type of mistake again.

Health Effects of Pesticides

You can help educate the public on the pesticide issue if you objectively help them understand health effects of pesticides. We must remind the public that pesticides are poisons but anything in excess is a poison. Remember, "The dose is the poison." Water in excess can be a poison. The dose of a pesticide is directly related to how we are exposed and over what period of time.

Poisons (pesticides) may be toxic because of acute or chronic effects. Alcohol illustrates acute and chronic toxicity. We are aware of the unfortunate incident at University of Missouri-Rolla where a student died as the result of a party one night; it is an example of acute poisoning. However, most deaths due to alcohol are the result of lower level doses over a long period of time resulting in liver damage, an example of chronic toxicity.

The acute toxicity of pesticides can be estimated relatively precisely if we wish to rely on data from laboratory animals as an estimate of toxicity to humans. However, there are additional problems in estimating the acute toxicity if a person is exposed to two or more chemicals simultaneously (synergistic effects). Nevertheless, very few pesticides have been suspended or canceled because they are acutely toxic -- although parathion and TEPP are possible exceptions.

Pesticides are under attack primarily because of chronic effects. How can health professionals accurately measure or predict the effects of 40 or 50 years of low level exposure? This is an awesome task and one I am glad I don't have to assess. What must we know before we place something in our environment, that cannot be removed once it is there, in order to be sure it won't be harmful chronically? "It won't affect me," we can say; but we are playing with the safety of our children and grandchildren.

Chronic health effects such as cancer, liver damage, kidney damage, birth defects, and nerve damage, can only be estimated by models or use of laboratory animals. In other words, we depend on laboratory tests using rats, mice, rabbits, etc. -- where pesticide exposure at relatively low levels over relatively long periods of time are used to measure chronic effects. The only alternative is to wait 50 years until enough epidemiological data are available to determine what our use patterns of today will have caused.

I believe my earlier example of DDT use serves to remind us that ignorance is not bliss. Our health professionals are going to err on the side of caution. Let me assure anyone that if he or she had the responsibility of determining whether pesticide use may have environmental health effects -- as I did when a member of a scientific advisory panel -- and of making a recommendation to the administrator of EPA, that decision would be found very troublesome.

It is trying for me when I find colleagues who fail to understand that pesticides have both acute and chronic effects, and who further fail to realize that there is very little correlation between the two types of exposure. This is especially regrettable in view of the fact that most of the issues I discuss below are driven by chronic toxicity.

Safety of Water and Food

The chronic effects of pesticides have given rise to real concerns among the scientific community, and hysteria in the public's perception about safety of our food and water. These in turn have brought about many programs that I will discuss.

Many studies underway here at the University of Missouri-Columbia are designed to assess the impact of pesticides on water. Much has been said recently about groundwater; surface water has, for now, been placed on the back burner. However, we probably have a better measure of pesticide contamination in surface water than ground-water. Interestingly, when contamination in surface waters (streams and ponds) is studied, more pesticide contamination of fish is found in and below urban areas than in agricultural areas. This indicates to me that the degree of contamination is governed less by the total pounds of pesticide used than by how it is used and disposed of. In groundwater contamination, though, this relationship may not hold true.

Safety of pesticides in food has been a concern for over 40 years. There can be hysteria, as illustrated by the alar debacle, about safety of our food. I personally believe the regulatory agencies are trying to protect us from pesticide contamination in our food. I also believe our food industry is working hard in this area. A St. Louis grocery chain with which I am familiar definitely is doing so.

The amount of pesticide in our food, water, and environment is measured at very low levels (parts per million, one part is the same ratio as one second in 11.6 days; parts per billion or one second in 31.7 years; parts per trillion or one second in 31,700 years). However, pesticides may persist, or move long distances, and bioaccumulate and concentrate.

Because of the situation I have described, many laws and regulations have been written that impact on agriculture. Some of these are:

Fifra Amended: This mandates a re-registration process whereby all older pesticides with data gaps must go through the same review as new pesticides undergo (often requiring 7-10 years and \$50 million). Many minor uses will be dropped voluntarily. Further amendments can probably be expected in the next session of Congress.

Emergency Planning and Community Right-to-Know: Farmers who store certain pesticides must inform their fire department, local emergency planning committee, and state committee. Although funds to comply with this plan were not incorporated in the state budget, this is a federal law and creates some real concern.

Endangered Species Protection Plan: Compliance is voluntary relative to use of certain pesticides in prescribed areas where endangered species may be found. Rules will probably be enforced in 1993.

Worker Protection Standards: The first draft of regulations to protect farm workers from unnecessary pesticide exposure were proposed over two years ago. A revised version could be out in 1992.

Pesticide Applicator Training: All farmers or commercial applicators who apply "restricted use" pesticides must be certified and licensed before they can purchase and apply pesticide. To continue to be licensed farmers must be recertified every five years. Present recertification for farmers is extremely lax and easy. Commercial applicators must go through recertification training at least every three years.

The Future

As this paper is a part of a policy seminar I share my impression of what the future may hold. No major changes are expected between now and the 1992 election. But changes in pesticide use will take place by the year 2000. Some believe "all pesticides as we know them today will be gone by 2000." I don't agree that all will be gone -- most, in fact, will remain -- but major changes will occur in how they will be used.

The first change that is certain to come is regulation relative to training and recertification of private applicators who use "restricted use" pesticides. This will be mandated by federal legislation and regulations, and Missouri's certification program will become much stricter and more meaningful.

By the year 2000, any farmer who wishes to use a pesticide will be required to submit a field plan. We can look at what took place to meet the terms of Conservation Compliance. We saw the Soil Conservation Service (SCS) and the Extension Service (ES) assist in putting together plans for individual fields and we know

how the Agricultural Stabilization and Conservation Service (ASCS) provides the incentive to comply. Add the Environmental Protection Agency (EPA) to the team and we see the principal actors already in place to implement such a planning process. Let me point out some parts already operating, at least as pilot programs:

SCS personnel are functioning as liaison representatives in all regional offices of EPA to look at such programs.

Three years ago the Soil Conservation Service presented to the Extension Service the results of two years' planning by a dedicated team that prepared training aids for methods of pesticide use on individual fields that avoid water contamination. Some components of this program are listed below. Some state-of-Missouri's nutrient and IPM (Integrated Pest Management) standards have been written.

ASCS has had a pilot program the past two seasons in five counties in each state. The program cost-shares with farmers who attempt to reduce nutrient and pesticide use through IPM. Incidentally, USDA-ES initiated IPM programs 20 years ago but did not receive the support that was needed. The IPM efforts were 20 years before their time. I know very well how frustrating it has been to promote IPM. Some persons believe IPM is business as usual and that we have been in IPM for years. They don't understand what IPM is.

Many of the pieces are already in place for a pesticide use compliance program. If we realize how fast we had to put Conservation Compliance in place we should try to avoid mistakes in preparing pesticide compliance programs.

What will a field plan include? Essentiality of pesticide use will be scrutinized rigorously. Prophylactic applications of pesticides will be unlikely. IPM standards will include such matters as scouting to support judicious pesticide use. Real time information delivery systems and pest models will be incorporated into the decision making process, in order to predict when pest infestation will occur. The question will be asked as to whether a pesticide is to be used, on leachable or erodible land, and if it is used, whether a water soluble pesticide or one with high binding coefficient should be applied. We can begin to visualize the complexity of such a field plan.

What will be needed to implement pesticide use compliance? First it will mean a considerable change in education and experience of those in ES and SCS to provide training of farmers or consultants who will prepare plans. Even then, it will be impossible for any one individual to be current in all disciplines that will have input into such a plan (agronomy, entomology, weed science, plant pathology, farm management, agricultural engineering, and more). We have such a demonstration program underway in Calloway and Atchison counties as present, financed by EPA through

the Missouri Department of Natural Resources (DNR). Use of expert systems will be the best method of delivering adequate information from databases to prepare field plans. Will we have the resources, foresight, and inclination to develop the essential materials? I hope so.

One thing is certain. Agricultural production is and will continue to be dependent on pesticides. Conservation tillage will require more, not less, pesticide. We may see shifts in types of pest problems (different species) but pest problems will not end. We may already be seeing changes in pest problems as we move into conservation tillage.

Will new pesticides continue to flow? Chemical companies operate on profits. I believe corporate boards will look carefully at expenditures on pesticides and no doubt already are doing so. Many mergers have taken place and direct sales of pesticide units are on the increase. Why?

What about alternative methods of control? Such methods as host plant resistance, biological control, and genetic engineering offer great promise but who will finance them? A few large companies and some venture companies are working on genetic engineering but as yet few have realized much return from their investment. In view of the present state of the economy and budgets, I doubt that public institutions can carry the ball.

Dr. Larry Pedigo of the Iowa State University points out that pest control is a dynamic field. He contends that pests will continue to develop resistance to all types of control. Therefore, pest management of the future will remain a challenge and we all will have to monitor and work with a dynamic system.

In closing I will make three points:

1. I paint a dark picture for chemicals. If we try to continue to do business as usual without making changes and projecting for the future, it will be dark indeed. I hope we have the perception to contend with a very dynamic situation.
2. The impression may be held that agriculture is the only source of pesticide problems. Not true! We should encourage regulatory agencies to focus more on urban and home-owner use of pesticides. I doubt there is any place in agriculture where as much pesticide is used per unit of area as is true in the urban setting -- the latter with a larger quantity of waste and improper disposal.
3. No other group of chemicals is studied more carefully (pharmacology and toxicology) than pesticides (NAS Committee, 1969).



SUMMARY

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Two major conclusions can be drawn from the seminar. First, conservation and environmental policy, as it relates to agriculture, has shifted from a primarily voluntary toward a quasi-regulatory approach. The Conservation Compliance and Swampbuster provisions of the past two farm bills (1985 and 1990) along with the Endangered Species Act are prime examples of the quasi-regulatory approach. The Conservation Reserve Program (CRP) is the major voluntary program.

Secondly, if current approaches do not produce improvements in soil conservation, water quality, and wetlands protection that the public perceives as acceptable, a regulatory approach will then be very likely. Peter Myers indicated that unacceptable progress in conserving soil and protecting water will increase the likelihood that the reauthorized Clean Water Act will have stringent provisions for protecting water quality in agricultural areas.

Several socio-political circumstances and developments undergird these conclusions. Among them are: (a) fewer farms; (b) a high (and increasing) proportion of legislators from urban areas; (c) greater awareness and concern about the health and environmental effects of agricultural chemicals; (d) agriculture's position as a major source of nonpoint source pollution; (e) effectiveness of environmental lobbying groups; and (f) greater concern over the amount of money being spent on farm programs.

The seminar raised other concerns, namely: (a) infringement of property rights and the taking issue; (b) uncertainty regarding the environmental "rules of the game" in farming; (c) costliness of farmer compliance with environmental requirements -- in some cases it can reduce short-run profits; (d) a growing tendency for farmers to view the SCS and ASCS as an adversary rather than a partner, as those agencies deal with complex rules and regulations; (e) insufficient budgets for SCS and ASCS; (f) short time frames for developing conservation plans; (g) potential conflicts between soil conservation and water quality objectives; (h) too many agencies regulating wetlands; and (i) federal budget limits that reduce the attractiveness of commodity programs and therefore the effectiveness of the quasi-regulatory approach to soil and water protection.

Where we go from here depends on what we want to achieve. Personally, I think the goal should be to move toward an agricultural production system that is economically viable, socially acceptable, and environmentally sound. Implementation of this goal will require giving more attention to: (a) agricultural production systems that are sustainable; (b) redirecting research and exten-

sion programs toward achievement of agricultural sustainability; (c) compensating farmers for taking of property; (d) educating the public regarding agricultural and environmental issues; (e) using expert systems to help farmers evaluate the environmental consequences of farming operations; and (f) increasing the effectiveness of farm organizations in public policy debates and in dealing with environmental groups.

The challenge that society has given to farmers is to adopt farming systems that are socially acceptable, economically viable, and environmentally sound. While meeting this challenge will not be easy, failure to do so can result in more regulation of agriculture.

DUE	RETURNED
DEC 23 1993	SEP 01 1998
MAY 28 1994	MAY 20 1994
FEB 23 1995	MAR 05 1995
SEP 20 1995	SEP 05 1995
APR 11 1996	MAR 14 1996
SEP 10 1996	JUN 12 1996
	SEP 27 1996

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