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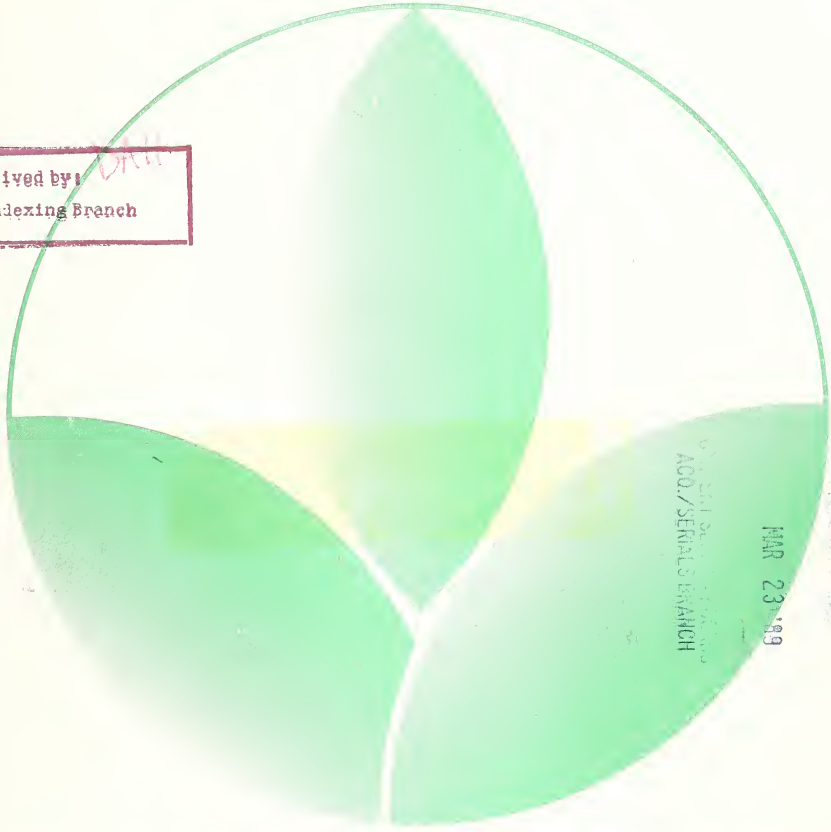
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# OUTLOOK '89

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# ANNUAL AGRICULTURAL OUTLOOK CONFERENCE

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## WATER QUALITY LEGISLATION AFFECTING AGRICULTURE

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Farming has traditionally been viewed as an activity consistent with stewardship of land, deference to wildlife, and harmony with nature. Perhaps that is an accurate picture. But public perception is changing; rejecting some or all of the traditional view of farming as perfectly compatible with environmental quality.

The American public increasingly sees agriculture as a source of environmental contamination; the farmer as the problem instead of a steward of nature. As a consequence, the pace of environmental legislative activity affecting farmers has accelerated. Here I review why, where, and how water quality legislation, in particular, may affect the future of American agriculture.

### Farming's Effects on Water Quality Have Become More Apparent

Over the past ten years, evidence implicating agriculture as a major contributor to water quality problems has rapidly accumulated. We now know that:

- \* Cropland is the source of sediment causing annual damages in excess of \$7 billion from siltation of navigation waterways, water storage facilities, drainage ditches, and irrigation canals, and interference with water-based recreational opportunities (Ribaud);
- \* Agricultural runoff was found to contribute one-fourth of total nutrient loadings and 40 percent of total sediment entering 78 major estuarine systems; high rates of agricultural pesticide runoff were found in 21 of the 78 estuaries, the source of our commercial marine fisheries (Crutchfield);
- \* More than 17 different pesticides have been detected in ground water in 23 different States (EPA, 1986); and
- \* As many as one-third of the counties in the United States may have groundwater supplies that are vulnerable to contamination from agricultural chemicals (pesticides and fertilizers) applied to overlying cropland (Nielsen and Lee).

Over 97 percent of rural Americans and nearly half of the total U.S. population rely on ground water for drinking and household use. Thus, over 50 million people are potentially affected directly by ground water contamination by pesticides or fertilizers (Nielsen and Lee).

### The Public is Concerned

Little is known about the human health effects of pesticide and nitrate concentrations typically found in ground water. Our ability to detect and measure chemical contamination surpasses our ability to understand and evaluate long-term health risks. But public concern does not await formalization of scientific opinion on this issue. People resent unwitting exposure to materials that carry any risk, albeit uncertain, through their food or water supplies.

Public opinion polls bear out this increasing concern. A 1986 Harris poll found that 93 percent of those surveyed nationally feel that water pollution is a serious environmental problem, 86 percent feel that drinking water contamination is a serious problem, and 69 percent are opposed to cutting Federal funds for environmental protection in order to reduce the deficit. Batie reports the results of another recent national survey which found nearly 60 percent of respondents agreed with the statement, "Farmers use too many pesticides," and only 23 percent were willing to accept as safe drinking water that has only "small amounts of chemicals" and meets government standards. Lest one believe this opinion reflects the views of a paranoid urban population, it should be noted that a survey of the general public in Iowa found that 52 percent of respondents saw farm chemicals as the largest threat to their drinking water, and 78 percent would favor placing restrictions on the amount of pesticides or fertilizers farmers could use, even if that meant that crop yields would decline (Pins, as reported by Batie).

### Legislation Reflects Public Concerns

The increasingly popular view that clean, safe water is as important or more important than agricultural productivity has placed pressure for change on the public institutions responsible both for environmental and agricultural policy. As a result, there is now an unprecedented degree of legislative and administrative activity, at Federal and State levels, geared towards water quality.

At the Federal level, more than 2 dozen agencies and offices have responsibility for some aspect of water quality. Federal actions and initiatives include recent reauthorization of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Endangered Species Act, both with minor modifications to enhance their effectiveness. Of special significance to agriculture is the Water Quality Act of 1987, an amendment to the Clean Water Act which places new focus on nonpoint-sources of water pollution. Agriculture is considered a major nonpoint-source.

Implementation of the 1987 Water Quality Act is well under way by the Environmental Protection Agency (EPA). Section 319 of the Act requires each State in the Union to:

1. Assess the nonpoint-source problems in the State, and submit to EPA a list of all water sources affected by nonpoint-source pollution, along with the source of the problem, including agriculture, where appropriate; and
2. Prepare and submit plans for programs, directed at identified sources, to prevent anticipated or resolve present nonpoint-source water pollution problems.

Preliminary plans are currently being reviewed by EPA. Most States have identified agriculture as an origin of nonpoint-source pollution in some watersheds. Thus, Federally-required State management plans are likely to contain initiatives aimed at reducing soil erosion from cropland, animal waste runoff from farmland, and/or pesticide and fertilizer contamination of surface and ground waters. The States are free to propose any mechanism for achieving water quality goals, including, at their discretion, taxes, subsidies, regulations, or voluntary guidelines.

In addition to its authority under FIFRA, the Endangered Species Act, the Water Quality Act, and related legislation (Safe Drinking Water Act; Resource Conservation and Recovery Act; and Comprehensive Environmental Response, Compensation and Liability Act), EPA has proposed a comprehensive, national strategy for reducing pesticide contamination of ground water (EPA, Dec. 1987). The proposed program, now receiving public comment, would: (1) establish maximum pesticide contaminant levels in drinking water sources as reference points to guide States in determining when contamination is approaching unacceptable levels; (2) rely on States to develop both effective contamination prevention plans and responses for action if and when maximum contaminant levels are reached; (3) assist States in monitoring pesticide levels and developing and implementing programs; and (4) include provision for Federal intervention if State reactions are insufficient to protect drinking water. The proposed pesticide strategy reflects a Federal-State approach that emphasizes voluntary compliance with suggested guidelines, but provides a backup regulatory response if State, local, and individual efforts fail to meet established water quality criteria.

Many States already have water quality legislation in place. Over the last 5 years, in particular, State governments have been active in proposing, passing, and enforcing legislation concerning soil conservation, surface and ground water protection, and pesticide use. According to reports by the Fund for Renewable Energy and the Environment (1987 and 1988):

- \* A total of 21 States have independent erosion and sediment control laws. Twelve States include provisions for enforcement or penalties associated with failure to comply with legislated soil loss limits or management practices;
- \* A total of 26 States have legislated restrictions on land use to reduce the threat of ground water contamination;
- \* Connecticut, Maryland, Virginia, and Wisconsin have implemented State programs specifically to reduce nonpoint-source water pollution.

- \* All but 7 States have programs to monitor pesticide levels in surface and/or ground waters; and
- \* A total of 11 States have banned the use or certain use practices associated with specific pesticides that are not restricted under Federal law.

The policy instruments employed by States to implement this legislation run the gamut from programs that encourage adoption of beneficial management systems, to laws that limit land use or restrict the use of specific potential water contaminants. Many State programs directly address agricultural-source nonpoint water pollution.

Because the costs of preventing agricultural-source pollution are less than the costs of cleaning up contaminated water, especially ground water, water quality legislation is increasingly directed at the source of the problem. In the case of agriculturally-related water quality problems, farming is the source of the problem.

#### Legislation Can Affect Farming in a Variety of Ways

The patchwork quilt of Federal and State water quality initiatives has resulted in implementation of a wide variety of different approaches to reduction of agricultural-source pollution -- all aimed, in some way, at farmers or farming.

Both the Federal government (EPA, U.S. Geological Survey, USDA, and others) and many States have launched extensive programs to monitor, map, and measure the significance of agricultural-source contaminants in water sources. Some States have moved ahead to implement voluntary or regulatory programs directed at agricultural sources. The following examples illustrate the range of different approaches.

- \* Wisconsin's Department of Natural Resources works with local governments to develop technical assessments and implementation plans that identify critical problem areas within watersheds and farmland. The State cost-shares with farmers for the installation of approved methods of controlling identified pollutants.
- \* Iowa's Groundwater Protection Act of 1987 will raise an expected \$65 million for use in monitoring, reducing, and conducting research concerning agricultural chemical contamination of water. A third of the funds for this program will be raised by taxing agriculture. Fertilizer sales taxes are imposed, and pesticide dealer license fees and pesticide registration fees are increased.
- \* Connecticut's Potable Drinking Water Law makes any identified water polluters liable for all resultant damages. Farmers are not exempt from this liability, even if they use unrestricted pesticides according to label recommendations. Thus, ground water damage from agricultural chemicals could require farmers to pay for clean up or to provide replacement sources of safe drinking water.

- \* California's Proposition 65 makes it illegal for farms or other businesses employing 10 or more people to knowingly contaminate water with any chemical identified as posing a cancer or birth defect risk. The burden of proof that there is no risk is placed on the user of the identified materials, some of which are agricultural pesticides. Stiff fines or jail sentences can be imposed.

The last three examples illustrate varying degrees of the increasingly common incorporation of restrictions or penalties that make farmers pay for water quality protection.

#### Regulations Pose New Constraints on Farmers

Agricultural chemical taxes and restrictions, required adoption of new production practices, with or without government cost-sharing, and liability for water pollution damages all have one thing in common: they raise the cost of production for some or all farmers. The distribution of farmers whose costs are increased depends upon the form of the legislation. While fertilizer taxes spread the cost of water protection efforts across all farmers, targeted restrictions on the use of certain farm chemicals near vulnerable water systems raise costs only for those farmers who are located in specific areas and whose agricultural chemical use practices or soil types are among those identified for targeting. Legislation which through voluntary or regulatory action results in reduced use of fertilizers or common pesticides may also reduce crop yields.

The emerging pattern of variety in legislative approach from State to State, and the tendency for States to provide differential protection of specific water sources most likely to be used for drinking water, means that farmers in certain localities, States, or regions will be more affected by water quality legislation than will others. This suggests a change in the competitive advantage that some farmers currently enjoy in the production of certain commodities.

There are many things that individual farmers can do to minimize the effect that new or forthcoming water quality legislation may have on their incomes (Crowder, Ribaldo, and Young). The relationship between soil erosion and surface water quality suggests that farmers can reduce their vulnerability to legislation targeting surface water pollution by increasing the effectiveness of their soil conservation efforts. Federal and State assistance is available to technically and financially support adoption of soil conservation practices. Furthermore, the Conservation Reserve Program offers cropland owners and operators the opportunity to receive annual rental payments for restricting crop production on "filter strip" areas near vulnerable water bodies.

Farm income losses from water quality legislation may also be partially offset through the adoption of integrated pest management, crop rotation, and "low input" agriculture practices that substitute land, labor, or management skill for agricultural chemicals. USDA and State research into practical, economical management systems will make important contributions to the ease with which farmers can adapt to the constraints imposed by water quality legislation.



## Farm-Level Effects Translate to Agricultural Sector Change

Despite prophylactic efforts, it is clear that restricting land use and agricultural practices to protect water quality will restrict the income of some farmers. If a large number of producers of a specific commodity experience yield losses and/or cost of production increases as a result of water quality legislation, the market for the commodity will also be affected. The farm sector could indirectly benefit from reduced commodity surpluses and higher commodity prices, but individual farmers and consumers would pay the price.

As the prevalence of stricter environmental legislation increases, tradeoffs among the following sector-wide consequences will need to be considered:

- \* Higher commodity and consumer prices.
- \* Lower direct government expenditure for commodity price support.
- \* Changes in farm income distribution, including:
  - higher feed costs and lower income for livestock producers;
  - higher aggregate income from crop production, but with;
  - reduced income for producers directly affected by restrictions.
- \* Reduced demand for the services of upstream agricultural services (farm input industries).
- \* Less business for downstream agricultural industries (eg: food processing).
- \* Improved environmental quality, including safer drinking water for farm households and livestock.

## Farm Policy Has a Role to Play in the Adjustment

Agriculture's contribution to water quality problems could be substantially reduced by modifying current farm programs to either or both: (1) sever the link between direct farm income support payments and crop production levels; and (2) target long-term acreage retirement schemes to areas of the country with greatest water quality vulnerability.

Traditional farm programs inadvertently encourage agricultural production patterns that lead to water quality problems (National Center for Food and Agricultural Policy). The adverse, but indirect effect of commodity programs on water quality is a consequence, primarily, of the fact that price and income support payments are linked to production levels for specific commodities. Commodity programs differentially encourage intensive production of crops with high erosiveness and high agricultural chemical requirements, encourage increased levels of fertilizer and pesticide application, and discourage diversification of farm operations for employment of low input agricultural systems.

The conservation provisions of the 1985 Food Security Act (FSA), including the Conservation Reserve Program (CRP), Sodbuster, and Conservation Compliance provisions, have the potential to partially offset these adverse effects by reducing soil erosion. Indeed, by retiring nearly 28 million highly erodible cropland acres to date, the CRP is proving highly successful in reducing soil erosion. Plans are proceeding on schedule for Conservation Compliance to kick in, little more than a year from now, assuring soil conservation on highly erodible land that remains in production and is owned by individuals who wish to retain USDA program benefits.

On one hand, the early signs and expected long-run success of the FSA conservation provisions has made them models for farm policy proposals aimed even more directly at reduction of agricultural-source pollution. For example, the CRP has not, to date, enrolled a large portion of land in areas most subject to groundwater contamination from agricultural chemicals, but the program could be modified or expanded to specifically target those areas.

On the other hand, the FSA conservation provisions address the symptoms rather than the cause of incidental conflict between commodity policy and environmental quality. Upcoming farm bill debate with respect to environmental quality is likely to focus on the tradeoffs involved in revising commodity programs to improve their consistency with environmental quality goals, versus expanding the secondary, environmentally-targeted provisions enacted to resolve the problems created by current inconsistencies.

#### Outlook and Options

The outlook is for increasing restrictions on agriculture from continued legislative initiatives addressing growing public concern for water quality. Because the EPA plans to have completed its current, national tests for agricultural chemicals in well water by late 1989 or early 1990, public concern is likely to peak at the same time the 1990 farm bill debate is climaxing.

Continued public and private sector research on new technologies and farm practices more compatible with water quality protection should, in the long-run, resolve many of the current conflicts between agricultural production and environmental quality. In the meantime, options are available to minimize the costs of sectoral adjustment to new constraints. High rates of participation by farmers in voluntary and visible efforts to reduce the threat of water pollution from agricultural activities could relieve some of the current pressure for restrictive regulation. Conscious, careful modification of current commodity and related farm programs could generate environmental benefits large enough to forestall or reduce the need for separate environmental legislation.

If voluntary actions are insufficient and agricultural legislation does not recognize and address the environmental consequences of agricultural production and current farm policies, then the pace of water quality legislative actions affecting agriculture is likely to accelerate. Farmers and farm policy decision makers now face a choice. They must either take independent action to incorporate water quality concerns into their decisions, or prepare to face externally imposed constraints. Modifying farm programs to allow for joint achievement of environmental and agricultural policy goals may be less traumatic for the agricultural sector than the alternative adjustment to additional, restrictive water quality legislation.

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