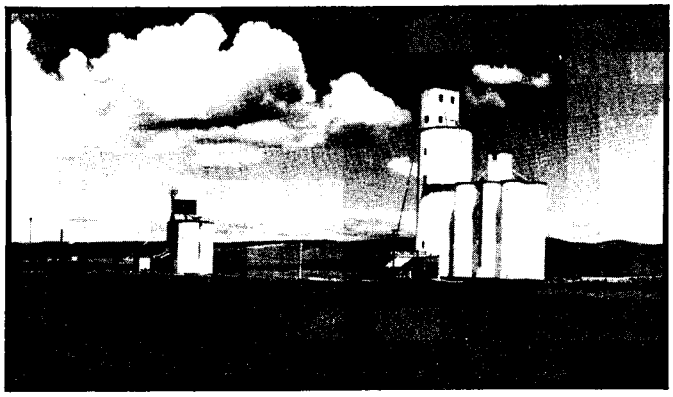
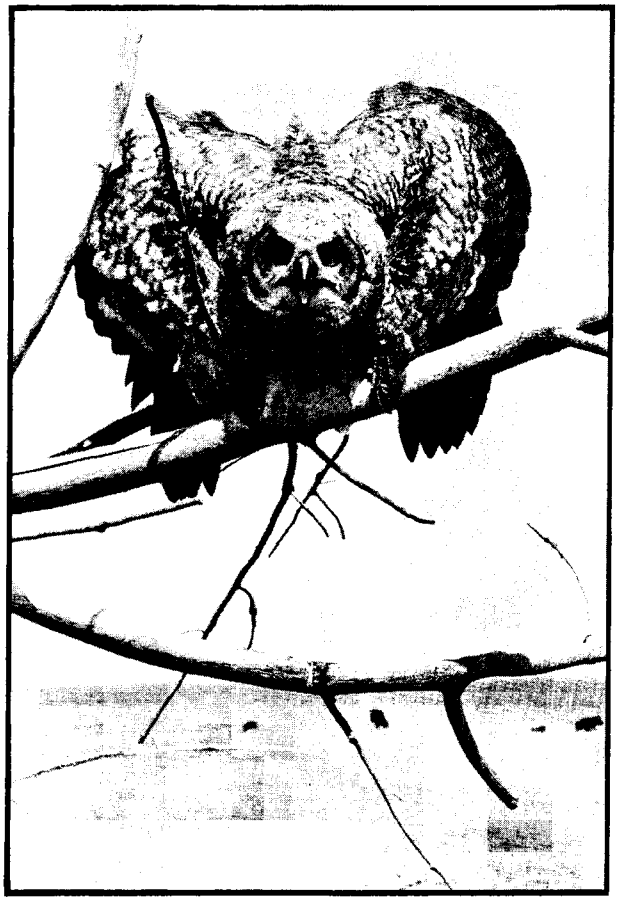
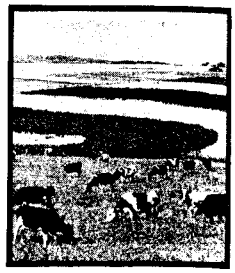
National Agricultural Lands Study

Executive Summary of Final Report







National Agricultural Lands Study

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Executive Summary of Final Report

January 1981

National Agricultural Lands Study
Co-Chaired By
United States Department of Agriculture
President's Council on Environmental Quality

Participating Agencies

Department of Commerce
Department of Defense
Department of Energy
Department of Housing and Urban Development
Department of the Interior
Department of State
Department of Transportation
Department of the Treasury
Environmental Protection Agency
Water Resources Council

PREFACE

Concern about the adequacy of America's agricultural land base to provide a continued supply of essential goods and services at reasonable cost are bipartisan and are shared by both the executive and legislative branches of the Federal Government. In a 1975 report, entitled "Perspectives on Prime Lands," Secretary of Agriculture Earl Butz emphasized the relationship between federal projects and the conversion of agricultural lands to nonagricultural uses. In its 1976 "Memorandum to Agency Heads," the President's Council on Environmental Quality directed government agencies to consider the effects of federal programs on agricultural land.

The Carter Administration sought to reduce the extent to which federal activities were causing the conversion of prime agricultural land. Executive agencies, including the U.S. Department of Agriculture and the Environmental Protection Agency, adopted specific agricultural land protection policies. In June 1979, the U.S. Department of Agriculture and the President's Council on Environmental Quality agreed to sponsor an interagency study of the availability of the nation's agricultural lands, the extent and causes of their conversion to other uses, and ways in which these lands might be retained for agricultural purposes.

This effort, the National Agricultural Lands Study, was charged with:

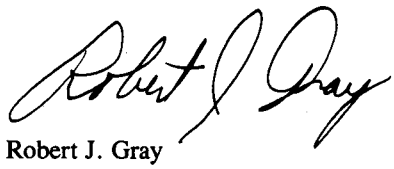
- Determining the nature, rate, extent, and causes of conversion of agricultural land to nonagricultural uses.
- Evaluating the economic, environmental, and social consequences of agricultural land conversion and methods used to attempt to restrain and retard conversion.
- Recommending administrative and legislative actions, if found necessary, to reduce potential losses to the nation that might result from continued conversion of agricultural land to nonagricultural uses.
- Presenting a final report on findings and recommendations in January 1981.

To obtain the views of the public, the National Agricultural Lands Study conducted 17 workshops around the country. Comments and ideas about agricultural land conversion, its causes, and ways of retaining agricultural land were obtained from about 1,200 people, including farmers, ranchers, forest landowners, real estate developers, local and state growth management planners, environmentalists, and others. The NALS research staff investigated seven primary areas:

- Agricultural Lands in National and International Perspective;
- America's Agricultural Land Base;
- Demands on Agricultural Land;
- Allocation of Agricultural Lnd Among Competing Demands;
- Consequences on the Infrastructure of U.S. Agriculture When Agricultural Lands Are Converted to Non-Agricultural Uses.

- State and Local Actions Affecting Agricultural Land Availability for Agricultural Production;
- Influence of Federal Programs on the Availability of Agricultural Land;

The study's principal findings, conclusions, and recommendations are presented in this final report. The study also produced several interim reports, technical papers, and a guidebook for use by state and local government officials. These publications are listed in an appendix to this report, along with information about how copies may be obtained.



January 1981

Robert J. Gray
Executive Director
National Agricultural Lands Study

EXECUTIVE SUMMARY

U.S. agriculture is undergoing a major transition. For several previous decades the amount of land in cultivation had not changed significantly but during the 1970s cropland harvested increased by more than 60 million acres as American farmers responded to a dramatic rise in demand for U.S. agricultural exports. That demand is projected to grow larger still in the coming 20 years, and as it does, pressures on the U.S. agricultural land base will increase. By the year 2000, most if not all of the nation's 540 million acre cropland base is likely to be in cultivation. When seen from this perspective, continuing *non*agricultural demands upon the agricultural land base become a matter for national concern.

The United States has been converting agricultural land to nonagricultural uses at the rate of about three million acres per year—of which about one million acres is from the cropland base. This land has been paved over, built on, or permanently flooded, i.e., converted to nonagricultural uses. For practical purposes, the loss of this resource to U.S. agriculture is irreversible.

The effects of agricultural land conversion have been felt locally, mainly in communities experiencing rapid growth; some citizens have grown concerned as they have seen their open spaces dwindle and the outlays for sewers, schools, and roads rise. States and local governments are experimenting with different means of keeping good agricultural land in farming.

Until quite recently, however, the conversion of agricultural land caused little concern at the national level. The land was being used to meet genuine demand for new housing and other goods and services, and the overall productive capacity of U.S. agriculture seemed undiminished. There was plenty of unused and underused agricultural land remaining and the steady gain in crop yield per acre (productivity) more than made up for agricultural land converted to other uses. But in the last few years, rapid international and national changes involving food, energy, inflation, and economic instability have created uncertainties about the management of the nation's resources. The public is both concerned and uncertain about the capacity of the U.S. agricultural land base to supply food and fiber at the high levels of production that are likely to be demanded in the coming years.

This uncertainty has prompted a debate over the continued conversion of agricultural land. The National Agricultural Lands Study (NALS) was undertaken by the U.S. Department of Agriculture (USDA) and the President's Council on Environmental Quality (CEQ), with the support of 10 other federal agencies, to assess the future implications of agricultural land conversion.

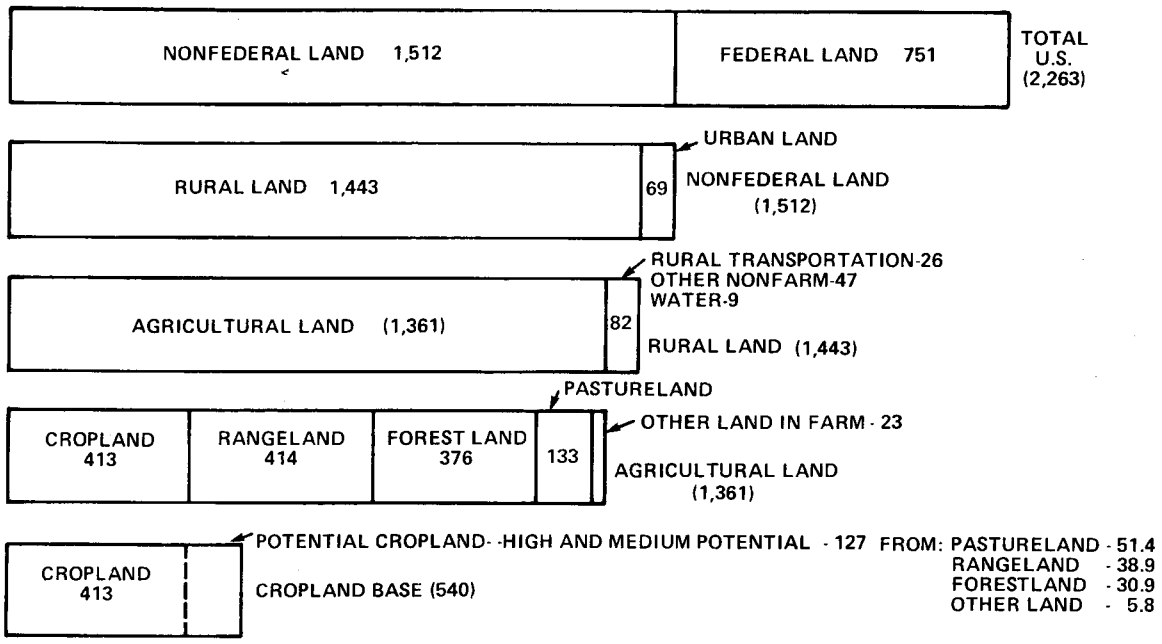
According to the data analyzed by NALS, the United States at present has approximately 413 million acres of cropland and about 127 million acres of potential cropland for a total of about 540 million acres. In addition, there are some 268 million acres of rural land with low potential for cultivated crops. (See Figure 1.)

From its research, NALS concludes that agricultural land is converted to other uses in an incremental piece-by-piece fashion. Many of the effects are local but continued conver-

Figure 1.

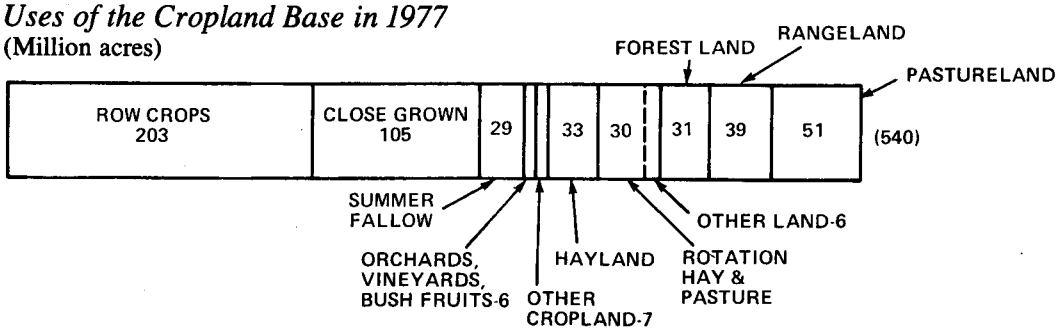
America's Land Base in 1977

(Million acres)



Uses of the Cropland Base in 1977

(Million acres)



Note: Unless otherwise specified, all data and references to the United States or to the "U.S. agricultural land base" in this report refer to the 50 states. In discussions based on Census of Agriculture and farm production regions, Alaska and Hawaii are excluded from the Western Region and U.S. totals.

sion of agricultural land at the current rate could have noteworthy national implications. The cumulative loss of cropland, in conjunction with other stresses on the U.S. agricultural system such as the growing demand for exports and rising energy costs, could seriously increase the economic and environmental costs of producing food and fiber in the United States during the next 20 years.

Demographic and Economic Pressures

In the 1970s, there was an unmistakable migration of the U.S. population from urban to more rural areas and from the North to the less densely settled South and West. Moreover, there was a surge in economic activity in rural America during the decade, especially new industrial plants, commercial distribution centers and processing facilities.

Over 40 percent of the housing constructed during the 1970s was built on rural land. The highest rates of population growth occurred in the open country and in unincorporated areas. Many homes were built on scattered, relatively large-sized lots. The availability of mobile or prefabricated homes also contributed to the population growth in the countryside.

At the same time, the suburbs continued to spread into rural America. The demand for rural land was enhanced by the increase in households. The United States experienced a 22 percent increase in the number of households formed during the 1970s.

These recent demographic trends have disproportionately affected some of the nation's most productive agricultural land. In the top 100 counties ranked according to the value of their farm products, the population grew at nearly twice the national rate from 1970 to 1978.

Residential preference surveys repeatedly show that a higher percentage of urban dwellers would prefer to live in rural areas or small towns than in cities. NALS projects that almost 12 million new households will be added to nonmetropolitan areas between 1977 and 1995.

Population growth in rural areas not only affects agriculture directly by causing the conversion of agricultural land to other uses; it also has some serious indirect effects on agriculture. One of these effects is termed the "impermanence syndrome." As population increases in agricultural areas, land values rise and farms are broken into small parcels more suitable for housing than for farming. Looking beyond their fences to new developments, many farmers see the opportunity to sell their farms at a large profit for nonagricultural uses.

Depending on the intensity and proximity of the growth, farmers in such areas often believe that agriculture is no longer permanent. Investments in conservation practices may cease and building repairs may be neglected because many years of continued agricultural production would be required to justify such capital expenditures. Even if

urban growth stops long before it reaches many farms, the perceived impermanence of agriculture in areas near expanding centers gives rise to a pattern of disinvestment in farmland, buildings, fences, and other farm property. In addition, agricultural equipment and supply stores lose business and may close if the number of farmers declines substantially.

Tensions between farming and nonfarming people often arise in rural areas with growing populations. The causes range from vandalism of crops and farm machinery to increased demands by new residents for public services, especially when the resulting tax increases to pay for those services fall heavily on the original residents.

Economic growth in rural America also outpaced growth in urban areas during the 1970s. Trade related jobs in nonmetropolitan areas rose about 27 percent between 1970 and 1976, compared with 16 percent in metropolitan areas. Manufacturing jobs during the same period increased 8 percent in nonmetropolitan areas, while declining 5 percent in metropolitan areas.

These economic changes influence rural land use. Economic establishments and supporting infrastructure require land. The amount of land actually converted to accommodate economic growth is not known precisely; however, the direct and indirect effects of economic growth appear significant. Economic development in rural areas contributes to the increasing demand for housing and public services, but it also provides new job opportunities for farmers as well as other rural residents. Many farm families now rely on off-farm work to supplement their incomes.

Although future rural settlement patterns are uncertain, the current economic growth and rural development trends are not expected to change substantially in the near future. This suggests that the conversion of highly productive agricultural land will continue unless there is a major shift of development onto rural land that is less productive for agriculture.

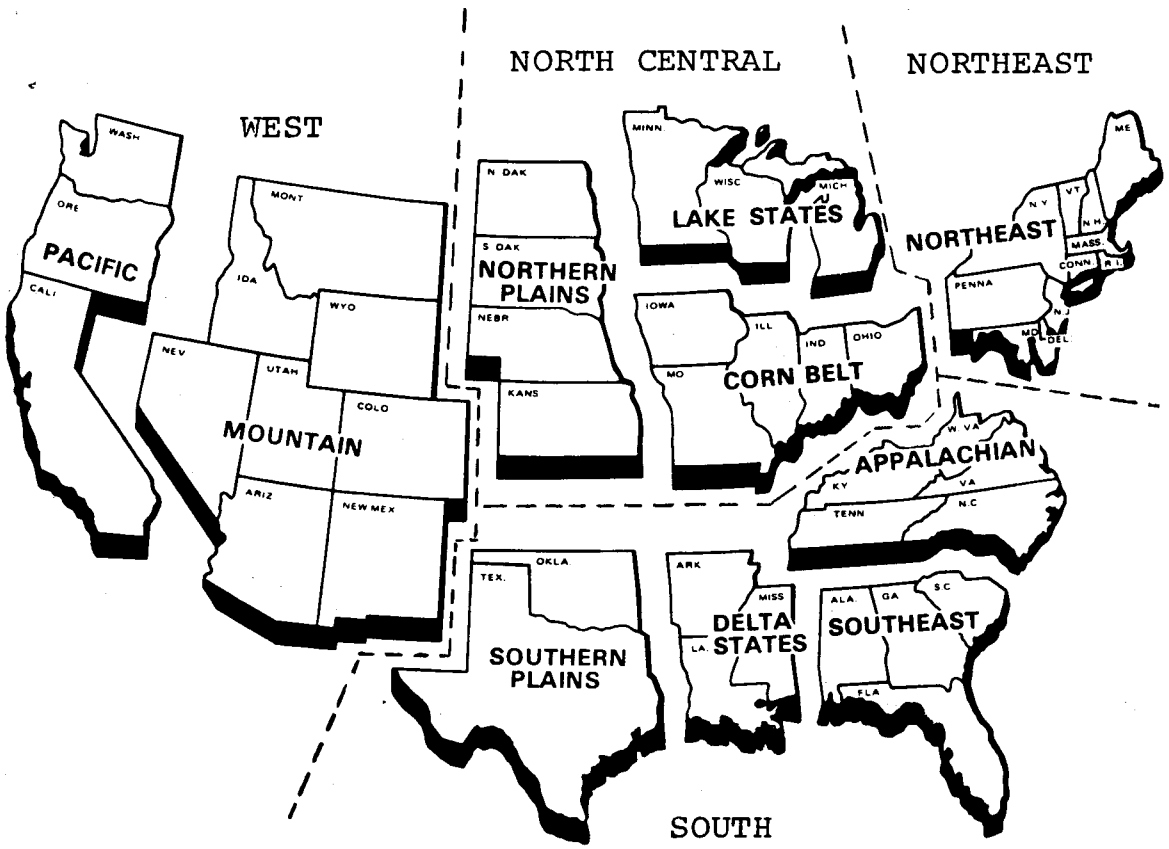
The impact of federal assistance programs on agricultural land is broad and far-reaching. NALS identified about 90 programs that contribute to the conversion of agricultural land. Programs with major impact are administered by the Department of Housing and Urban Development (HUD), Farmers Home Administration (FmHA), and Economic Development Administration (EDA).

Federal programs that result in loss of land for agriculture are generally ones that promote economic development, capital improvements, housing, environmental protection, or natural resources development. They encourage population growth in rural areas that either reduces farm profitability or directly results in conversion of agricultural land to nonagricultural use.

Sharp Regional Differences

There are wide regional variations in land resources and uses. Major shifts in ag-

Figure 2.
Census Regions—Farm Production Regions



ricultural land use among regions have occurred in the past, and factors that may contribute to additional shifts are underway today. (See Figure 2.)

The Western Region: Due to this region's population growth, the conversion pressure on existing cropland here is probably the strongest in the nation. Future increases in production on existing and potential cropland in this region are uncertain because of limited water supplies (underground and surface) for irrigation, and high energy costs for pumping. There are also new competing demands for limited water resources from new urban

growth and energy development projects. The build-up of salts in the surface layer of the soil in some of the West's most productive valleys casts further doubt on the region's long-term agricultural productivity.

The North Central Region: This region contains 55 percent of the nation's cropland and produces about 44 percent of its agricultural output in terms of the value of the products sold. Many communities in the region are surrounded by prime farmlands, so that any growth must occur at the expense of agriculture. Three major uncertainties in the region's agricultural outlook are (1) the decline of the underground water resources in some areas of the Northern Great Plains, especially in Kansas and Nebraska where irrigation has been so important to increasing productivity, (2) increased coal surface mining in the Corn Belt states such as Illinois, and (3) corn-based ethanol production in the Midwest.

The South: Agricultural economists look to the productive capability of potential cropland in the South to meet projected demands for food and fiber, while forest economists look to the productive capability of its forests to meet projected demands for lumber and paper. In some cases, they are both looking at the same land.

Existing reserves of land suitable for agricultural use are sizable here compared to acreages in other regions. Partially offsetting the region's climatic advantages and available cropland is its serious problem with soil erosion, caused by the high intensity rainstorms common to the area. As in the Corn Belt, expanded cropland usage here requires that additional precautions be taken against soil erosion. The prospects for increased agricultural production in this region are generally good except for certain areas such as Florida (extremely rapid population growth) and the Southern Great Plains (decline of groundwater supplies).

States and local governments in the South have done less to protect agricultural land than any other region.

The Northeast: There are nearly 14 million acres of prime farmland in this region, more than in the eight Mountain states or in the five Pacific states, and agricultural analysts expect a revival of local farming as energy prices push up the costs of transporting food from other regions. Nonetheless, this region, which has about 25 percent of the nation's population, contains only 4 percent of its total cropland and 4 percent of its potential cropland.

A Fundamental Transition

After four decades of agricultural surpluses, U.S. agriculture has moved away from underused production capacity. The principal underlying forces have been a gradual but marked overall decrease in the rate of annual productivity gains and a dramatic increase in foreign demand for U.S. agricultural products. The nation's continued conversion of cropland has to be evaluated within this context.

Over the next 20 years, USDA projects the volume of demand for U.S. agricultural

products to increase by 55 to 80 percent over the 1980 level, assuming constant real prices. The three basic components of demand growth are exports, conventional domestic uses, and ethanol production.

Exports are expected to dominate the growth in overall agricultural demand. The volume of U.S. agricultural exports increased an average of 10 percent annually during the 1970s. The harvest from one in every three acres of cropland in the United States is now exported. In 1979, the market value of U.S. agricultural exports reached a record $40.5 billion. Agricultural exports now account for almost one-fifth of the nation's total exports and play a key role in the U.S. balance of payments. Over the next 20 years, USDA projects the volume of U.S. exports to grow by 140 to 250 percent above the 1980 level assuming constant real commodity prices. Rising real prices would dampen somewhat the expansion in export demand.

Domestic demand for food and fiber is projected to increase about one percent annually by volume during the 1980s and then slow to 0.9 percent annually during the 1990s. About one-third of this growth can be attributed to rising income and higher per capita consumption and the remainder to population growth.

As OPEC oil prices continue to rise, the use of domestically-produced alcohol fuels from crops will increase. At present, ethanol (ethyl alcohol), distilled from corn, is being mixed in a 1 to 9 blend with gasoline and sold as gasohol. State and federal subsidies—totaling about $1 per gallon of ethanol—have stimulated demand. Experts project the ethanol industry to reach an annual production capacity of 4-6 billion gallons by 1990, although considerable uncertainty surrounds all alcohol fuel projections. The feedstock for this projected production level would require the corn grown on 15 to 23 million acres.

How much additional land will American farmers have to bring into cultivation to supply an average projected demand increase of about three-fourths over 1980 levels?

The answer to this crucial question depends heavily on the growth in yield per acre, a matter of considerable uncertainty. Agricultural experts disagree on how much the land's productivity will increase in the future. During the 1960s, nationally, crop yield per acre increased at an annual average rate of 1.6 percent and was by itself sufficient to meet increases in demand. In the 1970s, however, growth in yield per acre dropped to an average annual rate of 0.76 percent. During this time, about three-quarters of the gain in agricultural production came from newly cultivated acreage; only one-fourth came from increased yield per acre.

A number of factors apparently dampened productivity growth during the last decade, including:

- the rising costs of fuel, fertilizers, and other energy intensive inputs;
- less fertile agricultural land available for cropland uses;

- lack of reserve supplies of water to sustain past growth rates in irrigated agriculture; and
- the loss of natural soil fertility due to erosion or salinization.

If the yield per acre growth rate of the 1970s continues through the next two decades, and projected demands also materialize, then American farmers would have to cultivate an additional 113 million acres of land for production of principal crops, an increase of about 50 percent. A higher rate of growth in yield per acre, one comparable to the 1960s, would require cultivation of an additional 77 million acres, an increase of nearly 30 percent, to meet the projected demand.

Shifts of land into cultivation of this magnitude are technically possible, but they will require some major adjustments in the U.S. agricultural system. There will have to be large-scale shifts of forage land into crops, for example. Less land will be available for livestock grazing. As a consequence, confinement feeding operations will become more prevalent and the real cost of meat production will probably rise.

Higher real crop production costs are probable as well because potential cropland now coming into cultivation is more costly to till, is subject to more crop failures and yield variability, and produces poorer quality crops than cropland already in cultivation. Moreover, this land is usually more susceptible to erosion, groundwater overdrafts, and other environmental problems, hence its cultivation results in higher social costs either through conservation expenditures or through environmental degradation.

To draw into agriculture sufficient resources to meet the projected level of demand in the year 2000, farmers and ranchers will require incentives in the form of considerably higher real profits from their commodities, either through reduced production costs or increased prices. Protecting productive cropland that otherwise would be converted to nonagricultural use will help mitigate upward pressure on production costs, and indirectly, consumer prices, as the demand for food and fiber mounts throughout the remainder of the century.

Prime Movers—State and Local Governments

In its research, NALS found considerable grassroots interest in the protection of good agricultural land in widely different communities around the country. Citizens cite a variety of reasons for their interest. For some, their livelihood depends on the continued viability of the local agricultural economy. Others place a high value on open space or on access to fresh vegetables and fruits at reasonable prices. Still others believe strongly in the "stewardship" of the land. There are a growing number of Americans

who, for whatever reasons, think good agricultural land has an intrinsic value to the community beyond its price in the market place.

State and local governments have responded by trying a remarkable number of different approaches to agricultural land protection. There are few widely imitated models. Each state, county and township seems to have tried its hand at creating a unique program to deal with one or more of the factors that threaten the continued vitality of farming and the rural quality of life.

A common thread running through these efforts is zoning. Some 104 counties and 166 municipalities have adopted agricultural zoning in the last 15 years. It is still too early to assess with certainty zoning's long-term effectiveness when it comes to protecting agricultural land. It does seem clear, though, that no one tool by itself, whether it be zoning, property tax relief, or purchase of development rights, is adequate.

NALS reviewed a wide variety of state and local programs designed to protect agricultural land. Most successful programs began very simply by involving citizens in studying the situation and identifying problems and policy alternatives. Among the key ingredients of an effective agricultural land protection effort are farmer participation from the beginning, adequate technical and often financial support, strong local leadership, patience, and good timing, i.e., getting started *before* development pressures become too strong. Successful programs make agricultural land protection a part of a comprehensive growth management program, providing room for development on less productive agricultural land. Local programs need active state support because the effects of development often spill over township and county lines.

The state and local work done to date on the protection of productive farmland is encouraging, but an enormous amount remains to be done. At present less than 20 million acres of existing or potential cropland are protected under comprehensive, multifaceted state or local programs.

Federal Initiatives—NALS Recommendations

The federal government should begin by putting its own house in order. Of the 37 federal agencies reviewed by NALS whose programs sometimes encourage the conversion of productive agricultural land, only USDA and EPA have explicit policies designed to consider the effect of their programs on agricultural lands. And even in these two agencies, some program sub-units have not yet incorporated agricultural land reviews into their regulations and guidelines.

To remedy this situation, NALS recommends that the President or the Congress enunciate the national interest in the protection of productive agricultural land and direct the appropriate federal agencies to adopt an agricultural land policy to assure that they consider the potential negative effects of their activities on agricultural land.

The federal government should not finance or subsidize development projects that occur on good agricultural land. When a development project involves the conversion of agricultural land, the applicant for financial assistance should be required to demonstrate that there are no practical alternative sites on land less suited for agriculture.

In addition, federal loan programs should provide positive incentives in the form of lower interest rates to encourage development away from good agricultural land and onto land less suited for agricultural uses. Specifically, NALS recommends that the federal government offer preferential rates as part of the following ongoing programs:

- Federal direct loan and grant programs for housing, commercial and industrial development;
- Loan guarantee programs for development projects, community services, or infrastructure development;
- Home mortgage assistance; and
- Capital improvement loan programs for water, sewer, and electrification.

Federal action should address two separate problems with the estate tax. First, the use valuation provision for agricultural land should be revised so it no longer benefits large estates more than small ones. Secondly, on the administrative side, the Treasury Department should simplify estate tax provisions and clarify instructions and information to farmers, land owners, and tax advisors.

An overall review of the Federal Tax Code should be undertaken by the Departments of Treasury, Commerce, and Agriculture to determine the desirability and feasibility of offering positive incentives for retaining agricultural land in production.

The second major federal initiative should come in the area of supporting local and state efforts to develop agricultural land protection programs by providing technical assistance, data, and, where appropriate, financial backing.

A Final Word

As a resource problem, the conversion of agricultural land does not constitute a present-day "crisis," and hence it lacks the equivalent of, say, a gasoline line for concentrating national attention. Nonetheless, it does pose some very serious long-term risks for the United States. In a sense, the issue of protecting agricultural land today is analagous to the energy conservation issue 10 years ago. Looking ahead, we can see a resource problem developing but the immediate incentives for conserving the resource are weak. NALS recommends that the federal government make the protection of good agricultural land a national policy. NALS bases this recommendation on the two basic conclusions of its analysis:

(1) Given projected demand increases for U.S. agricultural products in the coming years, particularly for exports, and the uncertainty regarding future gains in crop yield per acre (productiv-

ity), the economic and environmental costs of continued conversion of the nation's most productive agriculture into housing tracts, shopping centers, industrial sites, and reservoirs could be very high within 20 years.

(2) Trend is not destiny. The population and economic growth trends now in progress in rural America can continue without disruption *and* without the loss of productive agricultural land at current rates. A concerted state and local government effort—buttressed with federal technical and financial support—combined with a redirection of federal loan programs could, if begun now and carried out energetically over the next two decades, channel much of the growth and development onto less productive agricultural land.

RECOMMENDATIONS

These recommendations emphasize the primacy of state and local governments in the protection of agricultural land and the supporting roles which should be played by federal agencies. The recommendations are organized in five areas, and summarized below:

I. *Characteristics of Successful Agricultural Land Protection Programs Offered for Consideration by States and Local Governments*

- The goals of protecting agricultural land and guiding urban growth are best achieved in combination with a comprehensive growth management system.
- State governments should assume an active leadership role in protecting agricultural land.
- Agricultural land protection programs should be established before development patterns foreclose options.
- Efforts to protect agricultural land should be based on accurate information about agriculture and future growth patterns.
- Agricultural land protection programs should have able political leadership.
- Agricultural land protection programs should support the economic viability of agriculture in an area.
- Agricultural land protection programs should be designed so that they are legally defensible.

II. *National Policy and Federal Agency Initiatives*

- The national interest in agricultural land should be articulated by a Presidential or by a Congressional statement of policy.
- Positive incentives should be designed within federal programs to encourage development away from good agricultural land and onto land less suited for agricultural uses.
- The adoption of an agricultural land policy by each federal agency whose programs result in converting agricultural land to nonagricultural use should be required by an Executive Order or by Congressional action.
- The coordination and implementation of agricultural land policies should be monitored across agency lines through an interagency group.
- Single-purpose federal assistance programs should be coordinated at the state or local level to ensure that agricultural land issues are adequately addressed in state or local planning efforts.
- Tax provisions that affect the agricultural sector should not favor purchasers of agricultural land who do not intend to retain the land in agricultural use. Periodic review of the Federal Tax Code should be made to determine the desirability and feasibility for offering positive incentives for retaining agricultural land in productive agricultural use.

III. *Technical Assistance and Education*

- The Soil Conservation Service (SCS) and the Cooperative Extension Services should improve their capacity, within existing resources, to provide technical assistance to units of government seeking to develop agricultural land protection programs.
- USDA and other federal agencies should provide technical assistance to state governments which request help in developing land protection policies or programs.
- USDA should design an educational program describing the importance of agricultural land to the nation's well-being and distribute educational materials through the mass media, schools, groups, and other federal agencies.
- USDA should establish an Agricultural Land Information Center to serve as a central depository and distribution point for information on agricultural land issues, policies, programs, and innovations.

IV. *Financial Assistance*

- Appropriate federal assistance programs should be revised as needed to permit eligibility of local government units, including soil and water conservation districts, to receive financial aid in developing agricultural land protection programs.
- USDA should consider small matching grants for "capacity building" to state departments of agriculture (or other appropriate state agencies) that seek to manage agricultural land issues.
- The Soil Conservation Service should give higher priority to completion of Detailed Soil Surveys in counties with important land under conversion pressure, and should respond to information requests from those counties now in the process of developing agricultural land retention programs.

V. *Information and Research Needs*

- The Federal Office of Statistical Policy and Standards, in consultation with other agencies, should develop a statistical protocol for federal agencies which collect and use natural resource data. Components of the protocol should cover standards for data collection techniques and requirements for appropriate statements of data limitations in connection with data publication or public release.
- USDA should develop a capacity for providing state or local governments with detailed statistical information on agricultural land use collected by federal agencies.
- A Data Advisory Group should be established in each state with membership of state and local officials. This group should advise agencies on how to make federal data collection programs more useful and accessible at the state and local level.
- The establishment of an agricultural land resource fund should be given serious consideration.

BIBLIOGRAPHY

In the past few years, many excellent reports and studies addressing agricultural land issues have been published. A few of these reports, as well as citations to more comprehensive bibliographies, are here to aid in seeking further information.

Overview Reports

American Land Forum, Land and Food: Preservation of U.S. Farmland, Washington, D.C.: 1979, 63 p.

Anthan, George, *Vanishing Acres, seven-part series published in Des Moines (Iowa) Register,* July 8 through 15, 1979.

Brown, Lester, R., *The Worldwide Loss of Cropland.* Washington, D.C.: The Worldwatch Institute, 1978, 48 p.

Conservation Foundation, *Long-Range Threats Stalk U.S. Farming,* Washington, D.C., August 1980, 8 p.

Couglin, Robert E. et al., *Saving the Garden: The Preservation of Other Environmentally Valuable Land.* Philadelphia: Regional Science Research Institute, 1977, 341 p.

Fields, Shirley Foster, *Where Have The Farm Lands Gone?;* National Agricultural Lands Study, Washington, D.C., 1980, 24 p.

Thompson, Edward, Jr., *Disappearing Farmlands—A Citizen's Guide to Agricultural Land Preservation,* National Association of Counties Research Foundation, Washington, D.C., 1979, 18 p.

Land Availability and Needs

Dideriksen, Raymond, Allen R. Hidlebaugh and Keith O. Schmude, *Potential Cropland Study.* Washington, D.C.: U.S. Department of Agriculture Soil Conservation Service, 1977, 104 p.

Lee, Linda K., *A Perspective on Cropland Availability.* Washington: U.S. Department of Agriculture Economics, Statistics and Cooperative Service, 1978, 23 p.

U.S. Department of Agriculture, *Soil and Water Resources Conservation Act: Appraisal 1980.* Review Draft Part I, Washington: 1979.

Zeimetz, Kathryn A., *A Growing Energy: Land for Biomass Farms.* Washington: U.S. Department of Agriculture Economics, Statistics and Cooperatives Service, 1979, 35 p.

State and Local Farmland Protection Programs

Davies, Bob and Joe Belden, *A Survey of State Programs to Preserve Farmland,* Washington, a report to the Council on Environmental Quality and by the N.C.S.L.; 1979, 79 p.

Toner, William, *Saving Farms and Farmlands: A Community Guide.* Chicago: American Society of Planning Officials, 1978, 45 p.

Federal Policy and Programs

Cotner, M. L., *Land Use Policy and Agriculture: A National Perspective,* E.S.C.S., 1976.

Frey, H. Thomas, *Major Uses of Land In the United States 1974.* E.S.C.S., 1979.

U.S. Cong. House Committee on Agriculture, *Agricultural Land Retention Act: Report.* 95th Cong. 2nd Sess. Washington: GPO, 1978, 29 p.

U.S. Cong. House Committee on Agriculture, *National Agricultural Policy Act: Hearings.* 95th Cong. 1st Sess., Washington: GPO, 1977, 260 p.

U.S. Library of Congress, *Agricultural Land Retention: An Analysis of the Issue. A Survey of Recent State and Local Farmland Retention Programs, and a Discussion of Proposed Federal legislation.* Washington: Congressional Research Service, 1978, 52 p.

Bibliographies on Agricultural Land Issues

Hess, David, *Bibliography of State Land Resources Planning. 1970-1975* (supplemental edition) indexed by State, topic, year, agency. (Council of Planning Librarians. Exchange bibliography 845-850) Monticello, Illinois: 1975, v. 2.

Bibliography of State Land Resources Planning, 1960-1974 (preliminary edition): indexed by topic, year, state, agency, (Council of Planning Librarians. Exchange bibliography 769-770 and 771 (parts I-III) Council of Planning Librarians. Exchange bibliography 772-773 and 774 (parts I-III) Monticello, Illinois: 1875, v. 6.

London, Alan C., and Wesley D. Seitz, and Clyde W. Forrest, Jr., *The Conversion of Land From Rural to Urban Use.* (Council of Planning Librarians. Exchange bibliography 721) Monticello, Illinois: 1975, 9 p.

U.S. Library of Congress, *Preservation of Agricultural Land: An Annotated Bibliography.* Congressional Research Service. Washington: 1978, 55 p.

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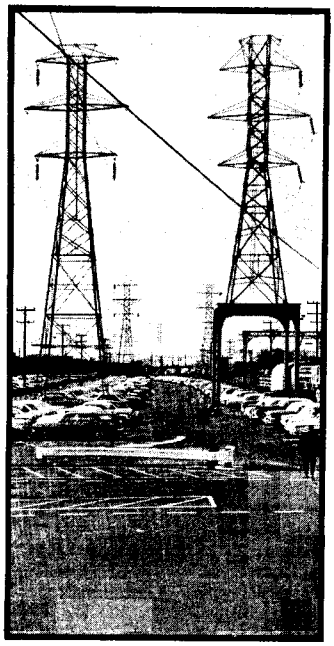

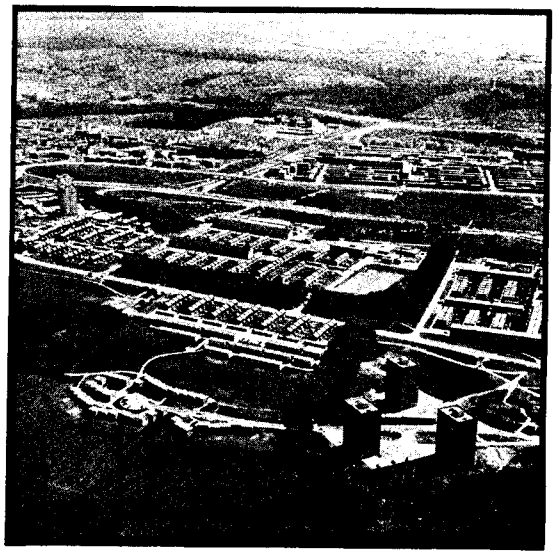

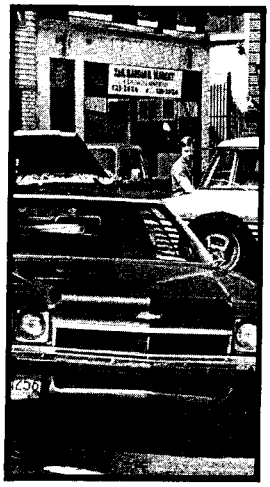

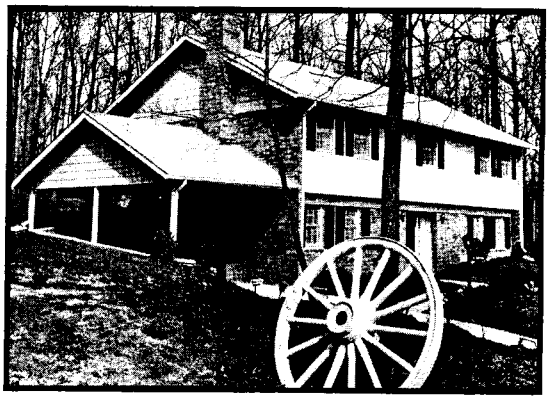

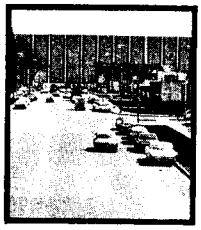

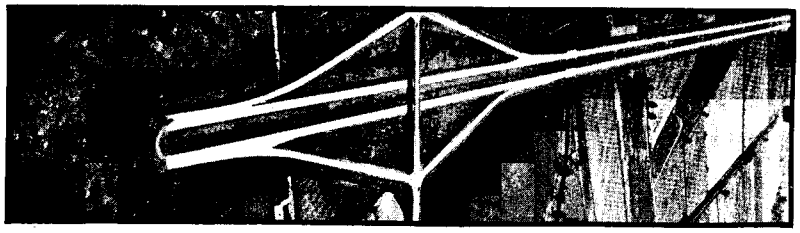

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