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Working Paper No. 412

A COHERENT POLICY FOR U. S. AGRICULTURE

by

Gordon C. Rausser and William E. Foster

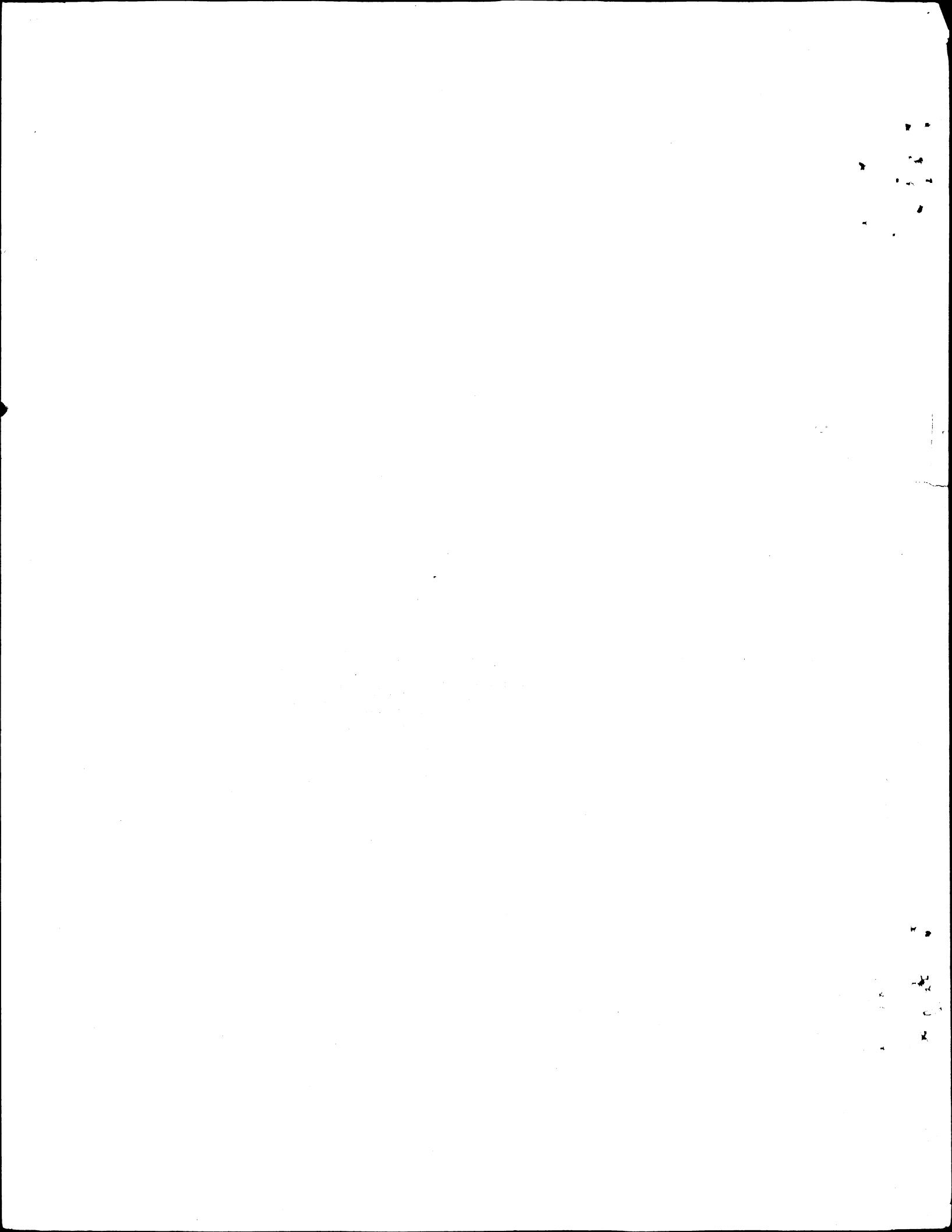
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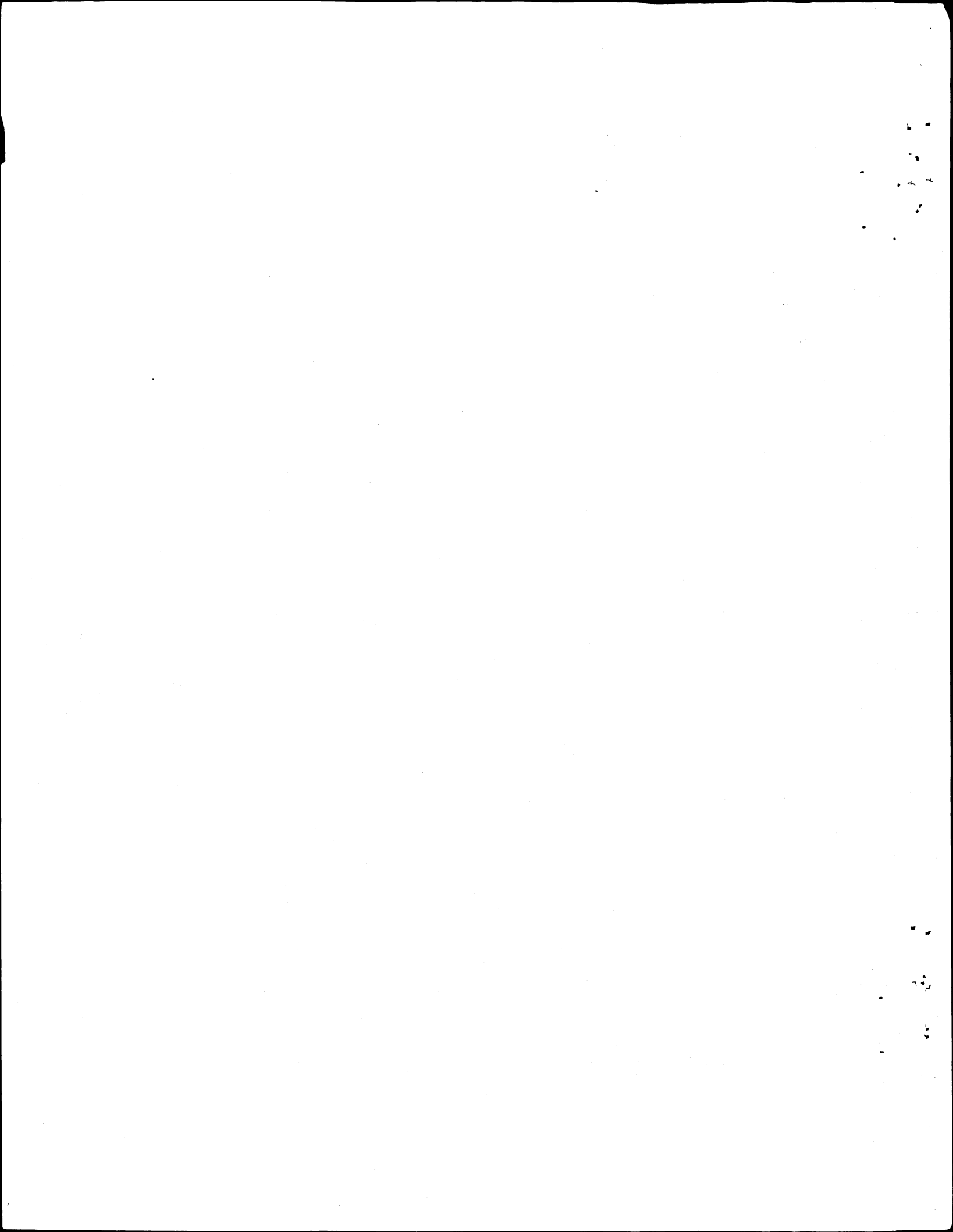
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California Agricultural Experiment Station  
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## A COHERENT POLICY FOR U. S. AGRICULTURE

by Gordon C. Rausser and William E. Foster\*

### 1. Introduction

If there is anything on which everyone interested in food and farm policy can agree, it is that American agricultural policy is an incoherent mess. The huge assortment of programs under the broad title of U. S. Food Policy frequently contradicts its own purposes, sometimes subtly but often blatantly. The conflicts between programs are all the sharper when we look at the conflicts between those most affected by policy--livestock producers against grain farmers; conservationists against those who need to use the land, water, fertilizer, and pesticides; and consumers who want cheaper food against producers who want more profitable returns.

The contradictions among components of Food Policy do not end on the farm or in the supermarket. Programs meant for the agricultural sector, time and time again, have been thwarted by and have run counter to other national interests and policies in other economic sectors. Indeed, the recent history of high interest rates, a strong dollar, and budgetary excess has led some to turn their attention from agricultural programs to larger economic issues. If we could only correct the national economy, the farm crisis would fade away. This notion, of course, downplays the deeper internal problems in agricultural policy. It also ignores farmers' potential enjoyment of economic conditions that others may find distressing.

Perhaps, these conflicts across programs and with other national interests are the least of our worries when it comes to confronting the problems of agricultural policy. Even the very underlying goals of food policy--why it

exists--seem to have lost their identity. Certainly, every interest group has a different opinion on just what the goals should be, but the national consensus has grown increasingly blurred.

If we complain that our agricultural policy is incoherent, contradictory, and confusing, though, what would a coherent policy be? Coherence is as illusive as truth; to suggest otherwise would not aid society's search for an improved policy. Nevertheless, there are a few characteristics we should strive for in designing a policy that approaches coherence.

First of all, a more coherent policy should be constructed to reach certain nationally recognizable goals. Second, the particulars of the policy--the programs and tactics--should not contradict these goals or each other. Finally, the policy should be able to sustain itself when the world changes, e.g., when there are bad harvests, when we embargo grain to the Soviet Union, or when the Federal Reserve tries to control inflation. In short, a more coherent agricultural policy should be one that is clearly articulated, logically connected, and consistent with other national priorities--a tall order, perhaps impossible, but something we should at least closely approximate.

Everyone might have an intuitive feeling that a policy with these characteristics would be a good deal better than the current state of affairs. It may be useful, however, to pause and ask the question: Even if we could attain coherence in agricultural policy, why would it be desirable? Coherence for coherence sake might satisfy academicians, but there are very practical reasons for it as our current farm problems suggest. Under current policy, many politicians and farmers feel helpless. Incoherence demoralizes, leads to uncertainty, promotes inefficiency, and generally diverts farmers' attention from economic management of their resources.

More importantly, perhaps, the present incoherent and confusing situation exacerbates the conflict between individual goals and society's good. It offers many lucrative and ultimately unproductive opportunities for individual groups and factions to work for what is in their near-term, short-sighted interests and against the general welfare. We may be at the point where the most successful farmer is less adept at farming the land than farming the government. The success of many a politician and lobbyist may have more to do with the ability to milk the system than with voicing the legitimate concerns of constituents.

That all government programs may be abused is certainly true. We believe, however, that the greater the incoherence of policy, the greater the likelihood of abuse and even further incoherence. This problem--and we place much emphasis on it--may be termed political failure, analogous in the operation of the government to market failure in the operation of the marketplace. Market failures often justify governmental action; but in this case the government itself is subject to failure, making intervention possibly worse than the problem it means to solve. A more coherent policy would tend to reduce the possibility that programs designed to attain broad social goals will change under pressure to reflect the relative lobbying power of narrowly focused groups.

The foregoing is broad and general--just an outline of the characteristics of a more coherent agricultural policy. In order to suggest some specific design, we must examine the present situation. What are the possible objectives of agricultural policy? How do programs specific to the agricultural sector conflict with other social interests and other national policies? How well do various programs stand up--how consistent, or robust, are they at meeting our goals--when the unpredictable world changes?



{ We first turn to a discussion of the goals of agricultural policy, including that of avoiding political failure in the implementation of programs. Next we analyze the world in which agricultural policy must act, examining the contradictions between sector-specific programs and other policies. We also investigate some specific commodity settings, the interests of agriculturally related groups other than simply farmers, and the political dimensions of policy construction and implementation. Before detailing our own proposals, we provide a review of some popularly discussed alternatives for policy. Finally, we present a set of proposed programs that we believe would yield a more coherent policy for U. S. agriculture. }

## 2. Public Policy

### 2.1. The Goals of Farm Policy

The objectives of governmental intervention in food and agriculture are clearly influenced by the "market failure" or equity problem that is presumed to exist. In the case of domestic U. S. agriculture, the rationales for governmental involvement have been many and varied. As stated in the Food and Agriculture Act of 1981, the general purpose of U. S. agricultural policy is "to provide price and income protection for farmers, assure consumers an abundance of food and fiber at reasonable prices, continued food assistance to low-income households, and for other purposes" (U. S. Congress, 1981). Given this general purpose, some have argued that the problem in U. S. agriculture is economically depressed farmers who require income enhancement; others have argued that farmers are in a relatively disadvantaged position in the marketplace and require public support in dealing with concentrated buyers of their products; and still others have argued that U. S. agriculture is faced with a

large degree of instability in commodity markets adversely affecting not only farmers but also consumers of food and fiber.

Currently, it seems that the most persuasive rationale for an active agricultural policy, given recent experience, is the market failure associated with an intolerable degree of instability or excessive risk and uncertainty. Nevertheless, there are other problems of the U. S. agriculture that many presume can be corrected by governmental intervention. Thus, a more comprehensive set of objectives than simply risk reduction must be considered.<sup>1</sup>

#### 2.1.1. Redistribution of Wealth

Traditionally, our society has paid much attention to the ideals of a fair distribution of wealth: Equity is good; disparity is bad. The historical "farm problem" has been repeatedly characterized by economists and other interested observers as the disadvantaged economic position of farmers. This notion once served as the single most important justification for state action to redistribute society's wealth to the agricultural sector. Policy analysts usually accepted the goal of redistribution without comment, focusing their study on comparing the various means of attaining this goal. Recent discussion, however, has looked askance at income transfers to farming as a heavily weighted objective of policy.

#### 2.1.2. Risk Reduction

The existence of market failures often rationalizes governmental intervention in the marketplace. In particular, the random character of both commodity prices and production is offered to justify public policies aimed at the agricultural sector. A market failure arises from the inability of farmers to adequately trade their risks to others in the economy and from the divergence

of social interests from actual farmer response to uncertainty. The tendency of a free economy to yield results different from the socially optimal has been at least tacitly recognized by policymakers. Farm policies, such as price-stabilization schemes and crop insurance, are designed, in part, to affect directly the ability of the agricultural sector to cope with, and respond to, the capricious nature of its physical and economic environment. One way to measure agricultural risk is income variability.

Farming operations have become increasingly reliant on outside sources for their financing and inputs (both material and labor), adding to their sources of risk and uncertainty. As the nature of agriculture has changed, the exposure to more risks has led to apprehension regarding the cash-flow and debt-asset problems of farmers. The focus of public concern has shifted from agriculture's relative poverty to the difficulties of managing in a risky environment without sufficient means of insurance.

The market failure associated with risk and uncertainty is among the most persuasive rationale for an active farm policy. This, of course, is not a necessary and sufficient condition for government intervention in food and agriculture. A sufficient condition is that the loss of economic efficiency in the case of uncorrected market failure is greater than the loss under the government's remedy.

### 2.1.3. Preservation of the Family Farm and Traditional Rural Communities

Preservation of the traditional concept of the family farm has been a social goal since the beginning of public policies for agriculture. Economically, many small family farms are thought to assure adequate food supplies without domination by a few powerful interests. Politically, family farms are

often considered an integral part of the ideal Jeffersonian democracy. The trend of agricultural structure, however, is toward fewer and larger farming enterprises run not so much as a way of life but as commercial operations as in other industries.

The relevance of this goal to maintain farms as small family operations will be increasingly questioned as agriculture continues to be further meshed with the rest of the economy. Future farm policy must answer the question: What does society want for the structure of the agricultural industry? This is a question for the long term; short-run policies, meant to respond to immediate difficulties besetting farmers, do not address this issue. Indeed, the concentration on a series of governmental reactions to serious but short-term problems may be taking agriculture further from the basic objective of protecting family farms.

Preserving family farms is but part of the concern. As farms grow larger, become more capital intensive and specialized, rural communities suffer. Distress on the farm translates into distress in rural banks, suppliers, and other business that depends on the economic health of agriculture. Replacing smaller farms with those of a corporate style, though, changes also the communities we traditionally associate with farming. Society puts the goal of maintaining family farms in this larger context of protecting the rural landscape, both physical and social.

#### 2.1.4. Flexible Agricultural Sector

An often ignored but crucial objective of policy is to insure the ability of the agricultural sector to adapt to changing economic conditions. This is related somewhat to the issues of risk insurance and food security, but another dimension to policymaking may be the desire to avoid future farm

policy crises associated with inadequate or mistaken government actions. When production and supply decisions in this country are divorced from the underlying market forces determining demand and production in the rest of the world, conditions arise to pressure U. S. agriculture to become more responsive to the marketplace. Eventually, the market asserts itself in one fashion or another--sometimes with spectacular results.

#### 2.1.5. Conservation of Resources

Resource and environmental issues are traditionally given scant attention in discussions of agricultural policy. The future productivity of U. S. agriculture is at stake; it is a matter of long-term concern. There are two primary reasons that resource conservation is a matter of public policy. First, society's goals for intergenerational equity may be inconsistent with the short-term objectives of individual farmers, making some form of intervention necessary to preserve adequate and reasonably priced food for the future. Farmers' interests may diverge from society's interests because income and credit constraints make erosive land use and excessive water consumption immediately profitable, or because farmers' attitudes about future generations of consumers may simply be contrary to society's view.

Second, institutional arrangements allow the costs of pollution (from sedimentation and farm chemicals) and water consumption to be diffused over many persons and not concentrated among farmers. The rapid depletion of water from the Ogallala aquifer, for example, is a common property problem. Since the water one farmer does not use is available for others, there is no incentive for any individual to husband the resource for its optimal benefit to all. Such externalities result, in part, from the lack of resource property rights. The government may deem water management programs a social good, perhaps limiting water demand by limiting production.

#### 2.1.6. Food Security and Reasonable Consumer Prices

There is a certain public good aspect to the federal government's participation in commodity storage. Society deems important the preservation of adequate food reserves which the private market may be unwilling to guarantee. First, public welfare may be enhanced not only by assurances of supply for this country but by the availability of grain stocks in the event of foreign crop failures, wars, and other catastrophes. Second, in the case of food price inflation, such stocks provide insurance to U. S. consumers that rapid increases in food prices can be moderated. Private enterprises engaged in the production and allocation of food supplies may lack the incentives necessary to maintain safe levels of stored grain because they are facing a stream of demands over time that are based on the actions of individual agents.

Typically, governmental programs rely on the manipulation of stocks to affect the price of commodities, but there is perhaps an unintended provision of food security when grain storage exceeds what would otherwise result. When debating and structuring farm policy, some appraisal must be made of the socially optimal level of stored grain; and alternative programs should be judged, in part, by their attention to this question of safe stock levels.

#### 2.1.7. Minimizing Treasury Costs

An additional social goal to be considered in the construction of farm policy is the minimization of Treasury outlays. Many of the objectives discussed above can be reached given sufficiently large expenditures of tax dollars. There is, of course, a political limit to the amount of funds that can be spent on addressing agricultural issues. Farm legislation is based on the support of the nonfarm population whose acquiescence depends on the

financial costs of programs: A greater proportion of resources channeled to the farm sector means less attention to problems of other social groups.

#### 2.1.8. Political Failure

In addition to solving market failure, agricultural policy must mitigate the effects of political failure. As we have outlined above, political failure is the tendency of the legislative process to produce policies that do not lead to socially superior outcomes. Political markets induce politicians to consider personal, not public, benefits and costs. As noted above, the existence of market failure is a necessary but not sufficient condition for government intervention.

Political failure has two important effects. First, a policy may be selected that does not solve market problems in an efficient manner but contributes to the short-run goals of politicians. This is the most obvious result of political failure--failure in choice. Economists can do very little to solve this problem other than try to inform the public and politicians about available policy choices. The second result, failure in implementation of a policy, is more subtle. Over time, policies may be modified to serve political concerns. Policy analysts should recognize this potential, as well as the additional costs of political failure in implementation, and design proposals that both alleviate market failures and mitigate or avoid political failures.

The idea of political failure is not just economists' response when politicians ignore what theorists recommend. While the term political failure may be basically an academic one, what it describes is a widely recognized phenomenon with a variety of names: pork barreling, cloakroom lobbying, mutual

back scratching, and, to much of the public, politics as usual. The dangers of political failure are, not surprisingly, recognized by politicians who on occasion seek to protect policies from its corrosive effect.

The clearest example of the legislative process searching for some defense against political failure is the greatly debated Gramm-Rudman Act. This is a case where Congress desires to enact a national mandate--cut the federal deficits. A majority of representatives and senators understand, however, that we cannot simply rely on unconstrained politicians to act in voluntary concert to attain this goal. What we can do is take the goal of budget cutting and isolate it from the debate on where, in particular, the budget should be reduced. If deficits are not reduced enough when we tote up the thousands of items that Congress must address, no matter. Gramm-Rudman takes effect and the ultimate goal of shrinking the budget is preserved.

## 2.2. States of the World

In this section, we broadly review the current state of the world as it pertains to agricultural policy. Generally speaking, most observers have shifted focus from the income disadvantages of farmers to problems associated with instability. The structural bases of past policies are much less applicable in the 1980s. In general, farmers today are not economically "disadvantaged" nor are they in need of wealth transfers from the rest of society. It is widely recognized, however, that the links between agriculture and macroeconomic and international conditions have frequently exposed farmers to intolerable fluctuations in financial costs, land values, and returns to farming.

There is a general feeling that traditional agricultural programs have lost much of their relevance in the presence of the wider economic environment. Policymakers may view with at least mild despair their recent efforts



to intervene for the benefit of the farm sector. They have designed an expensive but seemingly ineffective set of policies; and they have witnessed an increasing concern by a widening variety of groups--from commodity producers to input suppliers, banks, and conservationists--all in the context of growing pressure to reduce federal expenditures and move closer to a deregulated economy. Brief examinations of several relevant dimensions of the economic and political environment follow.

### 2.2.1. Foreign Policy

While particular aspects of our foreign policy may seem incoherent at times (especially when the country is searching for a consensus on certain issues) the broad principles of policy (the objectives and strategies) are generally constant and well known. After all, the problem of how a state conducts itself in the world has been around for a long time. In contrast, we do not have centuries of experience when it comes to defining what we want for agriculture and the path to achieve these desires. Few would argue with the statement that programs and goals of agricultural policy, tenuous and immediate as they are, often find themselves overwhelmed by foreign policy concerns. How our government wants to behave in this world of many independent actors limits just how far any policy, dedicated specifically to agriculture, can go in achieving its desired purpose. But it is more than merely a set of boundaries. The responses of foreign policy to an ever-changing world produce an uncertain, unstable climate in which agricultural programs must work. A policy designed to succeed under one set of circumstances today may turn out to be strongly contradicted by how foreign policy must respond in the future.

The infamous Russian grain embargo is popularly repeated as an example of how the interests of agriculture are ignored when the country thinks about

foreign policy. Whether or not agriculture suffered greatly by the embargo is a matter of debate, but it is a sharp lesson on where agricultural policy fits into the bigger picture of national interest. It also demonstrates how easily a policy--especially an inflexible one--can be thwarted by immediate changes in the government's foreign policy tactics. Agriculture would be wise to remain circumspect in pushing its interests with respect to foreign affairs. When President Carter viewed his possible responses to the Soviet Union's invasion of Afghanistan, he put little weight on the opinion of American farmers who could sit safely and criticize his decision.

The relationship between agricultural and foreign policies is, of course, far broader than the specific example of a grain embargo. Food aid to less-developed countries and export subsidies seem quite consistent with farm income supports but tend to conflict with consumer interests. Income supports, however, through loan rates and the like, tend to conflict with the long-term goal of free trade. Furthermore, the unrestricted flow of commodities across borders tends to increase the instability of agricultural prices and farm incomes. The European Economic Community (EEC) has a policy of inducing increased food production, which directly affects American farmers, by taking away world markets and lowering prices. What our government wishes to do about this is not just an agricultural issue but a question of how we respond to our friends when they do something that hurts our farmers. The United States wants to promote the development of other countries, which means helping their own agricultural economies, sometimes at the expense of American markets. How can we, for example, jibe the development of the Caribbean Basin countries with the restrictions on one of their main exports--sugar? It would seem an embarrassing assignment for a U. S. diplomat to explain to a country,

facing a world sugar price several times lower than our own, why we need quotas to maintain a concentrated number of prosperous, domestic producers who are relatively less productive anyway.

### 2.2.2. Public Health

Health issues, those unrelated to environmental concerns, have only recently begun to conflict with agricultural policy; but we predict they will become increasingly important in the future. Public health policy has always been extremely important; and agricultural policy, as we know it today, was designed to reflect this. The government inspects and otherwise controls the quality of much of what we eat, and it regulates to some degree the kinds of chemicals going into the production of food.

The public's perception of what the breadth of health policy ought to be is changing, however. Should not the government discourage the consumption of eggs and red meats if the consensus is that these foods are unhealthy? Why not prohibit or make very costly the use of tobacco if the medical and social costs of this legal drug are so great? These and similar questions will be heard more often in the future, and many farmers are not going to like the answers.

On the other hand, it is interesting to note that many agricultural programs that, sometimes on the surface, seem harmful to consumers' interest may actually be contributing to the goals of health policy. The tobacco program restricts supply and raises cigarette prices which discourages smoking. Quotas on sugar imports do something similar for sugar-coated breakfast cereals and soft drinks. Programs that raise the price of feed grains make red meats and eggs more expensive relative to a vegetarian diet. Cheap water

policy in California has increased the availability and decreased the price of fresh fruits and vegetables. These are examples of unintended consequences; and they stem, we think, from the incoherence of policy rather than from forethought. In general, however, we cannot rely on serendipity.

### 2.2.3. Tax Policies

Tax policies affect economic decisions: They can both encourage and discourage investment; they may promote some industries and make others unattractive. Furthermore, while the enhancement of social goals usually justifies the implementation of taxes, the enrichment of special interests often results. Many recognize that the current, complex system of taxes explains much of the state of agriculture.<sup>2</sup> The recent roller-coaster ride of land values and the incentives to invest in larger, more capital-intensive operations can be traced indirectly to elements of this tax structure.

Today's taxes simply provide an environment for investment that is not neutral across industrial sectors nor even between individuals in farming. Artificially short periods of depreciation, capital-gains provision, investment tax credits, and farmers' use of cash accounting are four principal elements of the present system that entice investment into agriculture, less for productive purposes than for avoiding tax burdens elsewhere. Nonfarm investors, especially in times of inflation, end up competing for assets (most notably land) with traditional farmers. Naturally, when conditions change and agricultural assets lose their tax-related appeal, many farmers remain holding greatly depreciated investments. These elements also tend to benefit larger farms with surer incomes and better collateral, relative to smaller farms and those with fewer capital resources on which to draw.

When farm investment is made so attractive in these ways, the capital intensity of agriculture grows. The industry moves toward a concentration of productive assets in the control of fewer, bigger concerns. The present tax policies conflict severely with goals of preserving family farms, maintaining rural communities, and generally protecting our traditional rural landscape.

#### 2.2.4. The Structural Characteristics of Agriculture

It is widely recognized that the structure of farming has changed considerably since the introduction of large-scale governmental intervention in agricultural markets. Today, there are slightly more than 2 million farms, a third of the number 50 years ago; and, although the rate of decline in total number has slowed, fewer farms are expected in the future. Coincidentally, the average farm size has increased in terms of acreage, sales, and value of assets.

Knowledge of current and past farm structure is fairly complete, and a great deal of time has been spent in examining the topic as it relates to problems that future agricultural policy might address.<sup>3</sup> Information is scarce, however, on the connection between policy choices today and tomorrow's structural characteristics.

The present distribution of farm size can be most usefully characterized as trifurcated. There are a large number of small farms contributing a relatively small amount of total output value. These farms represent, on average, an insignificant source of income (in some instances negative) for their owners; and they are minimally affected by agricultural policies. In part, their large numbers can be attributed to the official, and somewhat misleading, manner in which farms are defined. Over one-third of what are called farms have sales less than \$5,000 and three-fifths have sales less than

\$20,000. The majority of these small farms cannot be considered commercial enterprises but, rather, hobby farms or supplementary sources of income for rural families.

By contrast, there are a small number of large farms with gross sales of \$200,000 or more, making up less than 5 percent of the total number. These farms produce nearly half of total output in terms of value, and they gain disproportionately from government aid. More strikingly, farms of over \$500,000 in sales produce approximately three-tenths of output value but make up 1 percent, or less, of the total number of farms. Some large farms may be in serious financial trouble today. A consensus exists, however, that--with or without traditional farm programs--the largest farms will continue to dominate in agricultural production although not necessarily in exactly their present form.

Medium-size farms, the remainder of the total, represent approximately one-third of all farms. They have sales between \$20,000 and \$200,000 and contribute slightly less than half to the total value of production. These enterprises correspond most closely to the traditional concept of the family farm, being the major occupation and livelihood of their owners. Program benefits generally flow to those who produce the most, but it may be the viability of the midsize farm and the welfare of midsize farm families that are the most affected by agricultural policies.

One of the major questions for policymakers is: How do programs affect farm structure--especially farm size?<sup>4</sup> While there have been significant changes in structure, the implications of agricultural policy are not well known. Theoretical analysis seems to point to governmental programs inducing increases in farm size. Empirically, however, this is difficult to verify.

Large farms do benefit the most monetarily, due to payments based on production levels. For instance, in the past year, farms with sales over \$200,000 received 22 percent of governmental payments. In addition, families with specialized large farms are more dependent upon farm income as opposed to off-farm income. Therefore, programs reducing agriculturally related risk (programs dampening price fluctuations and insuring yields) would tend to make such farms more attractive enterprises. On the other hand, the cost advantages associated with technology of large farms may be the primary determinant of long-term profitability relative to smaller sizes. Hence, farm programs available to all size farms have merely added a margin of profit--the greatest additional profits going to the biggest producers.

In terms of income and assets, farming as a sector is not as badly off as popular conviction sometimes holds. There are individual hardship cases plagued not so much by income problems as by financial stress. Compared to the past, when farm policy was motivated by widespread hardship and dislocation, income is currently not as important a topic as it once was. Aggregate farm income is lower than previous levels, but this is not a good representation of the welfare of individual farmers. Average farm-family income is approximately \$10,000 (1972 dollars) compared to \$6,700 in 1960. Off-farm income makes up about 60 percent of this average level. But even average income is a poor indicator of family welfare. For farms with less than \$40,000 in gross sales, farm income is usually a minor component of average income--in fact, averaging a loss of \$688. Farms with \$40,000 or more in sales have an average income of \$45,000 with approximately one-third of income from off-farm sources.

The current financial stress suffered by some farmers has brought greater attention to the debt-asset position of farming as a whole.<sup>5</sup> The agricultural

sector has over a trillion dollars' worth of assets, primarily in land. Land values, however, have declined dramatically, bringing asset values down. As land prices increased during the past decade, debts also swelled. Today, the debt relative to net farm income is almost twice as high as 15 years ago.

Debt relative to assets increases with farm size; and large farms have, on average, the least enviable debt-asset position. Even so, the debt/asset ratios are more favorable than comparable nonfarm firms. Moreover, large farms have both greater incomes and asset values which give them some resilience in handling financial hardships. Families with small farms also are somewhat insulated from financing problems because they have a greater proportion of incomes from off-farm sources; and they have, for the most part, avoided the purchase of land at overly inflated prices in the 1970s for the purpose of expanding production or speculating on further price increases. It is the medium-size farm that typically is at the mercy of future income instability and asset devaluation.

While the income and financial problems of some farmers are of much immediate concern, the issue of productivity is one of general and long-range interest. Productivity has been given considerable attention recently since it will influence future supply and the ability of U. S. agriculture to meet domestic and international food demand.<sup>6</sup> Greater cost efficiency will tend to benefit farmers but at the expense of depressing prices and perhaps adding to what is sometimes called excessive productive capacity.

Agricultural productivity has increased substantially in the past 50 years due to public and private investment in research and to increases in farmers' managerial ability. The taxpayer has heavily supported productivity research and has reaped significant benefits in terms of lower commodity prices because,



over much of history, demand for U. S. agricultural products has been relatively inelastic. The growth rate in farm productivity is projected to decline in the future, but this is not a certainty. More efficient methods of pest management and changes in input use (water and fertilizer) and tillage may contribute to increases in the productivity growth rate. The greatest unknown as yet--and one of the more important gaps in policy analysts' information--is the effects brought about by biological-engineering technologies.<sup>7</sup> Some specific farm products (for instance, milk) may have further increases in productivity that far outpace agriculture as a whole. The resulting boom in the yields of particular commodities may drastically depress prices and place severe pressure on governmental programs designed to regulate supply for the purposes of enhancing incomes. And, as in the case of dairy uses of grains, productivity changes in one agricultural industry may have detrimental effects on another. Consequently, a wide range of governmental programs may be affected ultimately.

#### 2.2.5. Macroeconomic and International Links

The performance of the agricultural sector is determined, in part, by the larger economic system comprising the macroeconomy and international economy. This has been, at least qualitatively, understood for some time. The importance, however, of these macroeconomic variables has not been fully appreciated or accounted for in the construction of traditional agricultural policy, at least until recently.<sup>8</sup>

Indeed, due to the present concern for the financial morass in which some farmers are stuck and the now near-universal attention to deficits, interest rates, and the late recession, agriculture's links to the larger economy have

been particularly popular topics to address wherever conferences on agricultural policy are held.

Nevertheless, we consider that there is still some confusion about what significance interest rates, exchange rates, and inflation should have in the design of policy. This confusion results, in part, from a conceptual divergence in the minds of analysts as to the existing farm problem.

In addition to the divergence of professional perspectives, economists and policymakers lack concrete information by which the importance of macro-economic links can be judged or tested. For instance, only recently have interest rates exhibited significant volatility, allowing observation of consequent responses in the agricultural sector. It is disheartening to note that the information necessary for policy choices is being revealed by the very conditions causing such concern.

Despite the sparseness of hard empirical analysis, there is general agreement that the setting in which policy affects agriculture is quite different from that of just a few years ago. There has been a greater interdependence between national economies (in terms of both volume of trade and capital markets) and a significant change in the farm sector's relation to credit markets. Agricultural exports make up approximately one-fifth of the total value of total U. S. exports. Furthermore, net farm-product exports are consistently a positive value compared to a net deficit for nonagricultural goods. As the agricultural sector has grown more dependent on exports, the nature of aggregate foreign demand has become an increasingly important question. One of the major issues not yet fully understood is whether export demand is sufficiently elastic for a decrease in prices to be surpassed by increases in volumes, thus raising long-run total income.

With respect to its relation to capital markets, farming is extremely capital intensive. The agricultural sector is more than twice as capitalized as manufacturing on a per worker basis, and this only accounts for physical capital, not land. These changes have produced a greater sensitivity of the agricultural system to interest, inflation, and exchange rates and to changes in the demand for U. S. exports. A broad consensus holds that current governmental deficits, and the reluctance to monetize the debt, have maintained real interest rates at levels debilitating to some farmers. There are two main aspects to this issue. First, the current debt-asset position of some farmers leaves them financially strapped--exposed to intolerable cash-flow and equity problems. This is a relatively direct aspect of agriculture's links to the larger economy through interest rates. Traditional commodity programs are ineffective at addressing this condition. Second, more indirectly, high interest rates induce a strong dollar which reduces foreign demand for U. S. exports and increases import competition. A weak dollar in the past aided exports by keeping prices to foreign demanders low. Commodity programs, tending to support prices as income maintenance, worsen any reduction in export demand and fail to pressure a necessary contraction in U. S. production.

The effects of federal fiscal and monetary policies on interest rates, exchange rates, and inflation must be placed in the context of other international trade issues. The trend in world agricultural trade is to a greater dependence among nations, greater competition between suppliers, and lower export prices generally. The world recession and associated international credit problems brought about a shifting back of demand for U. S. exports at any price, exacerbating the effects of high domestic support prices and exchange rates. In the minds of many, the continuing world recession will be

the most important obstacle to revived growth in world agricultural markets. In addition to the world economic conditions, an indirect effect of high interest rates and a strong dollar may be to encourage foreign governments to contract their own money supplies. This, in turn, leads to lower aggregate foreign income and a lower demand for U. S. farm goods at least in the short run.

Future levels of foreign demand are likely to grow at a slower rate than the United States experienced in the 1970s, although faster compared to the recent past. Slower growth in export demand is attributable to several conditions. First, world population and economic growth rates are likely to decrease. Second, an increase in foreign production will be encouraged as a result of continuing development, technological improvement, and the improved exchange rate and trade positions of other producing countries. Increased agricultural production in some nations may not be negative per se for U. S. producers when viewed from a longer term perspective. Indeed, foreign agricultural development offers some hope for U. S. exports. Farm sector development may lead to increased incomes and increased demand for certain U. S. commodities. Whether or not, in general, foreign agricultural development bodes well for U. S. exports has not been determined. Brazil, for instance, promises to be a future and able competitor in soybeans at least.

A third condition dampening U. S. export demand is the maintenance of uncompetitive agricultural and foreign trade policies in many countries. Several nations restrict potential imports from the United States by use of a number of barriers; they may even be behaving strategically to receive a price lower than they would otherwise. Exporting countries will likely continue to market their farm products more aggressively than the United States. The

behavior of foreign governments, heavily dependent on world economic conditions, is unlikely to be affected without much U. S. pressure.<sup>9</sup>

In the early 1980s, four factors of the macroeconomy and international economy came together to produce unfortunately severe pressures for an adjustment in U. S. agriculture. High interest rates, a strong dollar, a contraction in world income and demand, and institutional barriers to trade--all indicate that resources should move out of U. S. farming to get the sector into equilibrium with the rest of the economy. However, because of agriculture's capital intensity and its major dependence on international trade, this combination of factors has meant that farmers have had to pay a painful adjustment tax. This tax not only took the form of higher interest payments and lower commodity prices for goods whose supply was not shrinking fast enough but also made farmers see a drop in their stock of wealth. This stock of wealth had accumulated in property values over a period when macroeconomic and international economic conditions were more favorable or at least benign in character.

A final issue, whether the international market is becoming more or less stable, is a major question for U. S. farm policy. Greater stability seems to be implied by several factors: the increased use of forward contracting markets to anticipate prices, the more predictable behavior of major importers (e.g., the USSR), and the greater integration of national markets. The recent history of agricultural trade, however, is not encouraging. Instability in the future may result from increased production variability in the United States and abroad and increased uncertainty about domestic and foreign policies.

To be sure, regardless of whether international markets are more or less unstable, U. S. markets can be more unstable because of large shocks to financial markets, exchange rate markets, and international commodity markets.

#### 2.2.6. Resource and Environmental Dimensions

Traditionally, in discussions of agricultural policy, resource and environmental issues have been given much less attention than farm structure or macroeconomic and international links. In part, this is due to the long-run nature of resource problems: There is a lack of immediate concern. Nevertheless, interest in soil erosion and water quality especially has grown and will continue to grow as better information on such problems becomes available and the focus on farm welfare shifts from short-term income difficulties to long-term productivity maintenance. Many analysts and policymakers are starting to anticipate a need to integrate agricultural and resource policies.<sup>10</sup> Recently, a major concern has been expressed for land degradation--erosion, salinity, and conversion of cropland to nonagricultural uses. The general consensus is that soil erosion has increased, particularly during the 1970s as crop acreages increased. Erosion may threaten the long-run productivity of farming, endangering not only the well-being of individual farmers and regions but also the competitiveness of U. S. agriculture in general. These on-farm costs of erosion have overshadowed off-farm costs (e.g., sedimentation) which are perhaps much greater. Knowledge, however, regarding these costs and how to treat them is limited, though increasing. Data on off-farm costs are necessarily harder to obtain, and there is some confusion over how best to treat off-farm problems related to erosion. While concentration on farmland erosion will in some ways reduce off-farm costs, it is possible that direct treatment of

off-farm problems may be more socially profitable. Additionally, practices aimed at controlling erosion may actually exacerbate water quality problems due to increased runoff of farm-related chemicals.

Excessive land degradation occurs on a small proportion of total agricultural land (less than 20 percent), but these losses are highly concentrated geographically. The general view appears to be that government policies are warranted by the divergence of social and individual interests. Past policies may have encouraged farms to maintain production of supported crops on erosive land--crops (feed grains, soybeans, and cotton) that take up most of the land with erosion problems. In addition, the government has provided at least implicit import subsidies in the form of natural gas, water, transportation, and other policies; these factors, too, have resulted in the expansion of farming to the detriment of resource conservation. There is also a macroeconomic link to resource use: Higher interest rates today signal farmers to place a greater value on current proceeds from expanding output. Furthermore, a coincidental disinterest in resource-conserving investment is created. Future increases in land productivity may induce reduction in acreage and thus reduction in soil erosion. Previous technological changes have emphasized the expansion of crop acreage. Much improvement, without greater public expenditure, may be had, however, by simply increasing information to government agencies and farmers and thereby improving land management and erosion-damage control.

The conservation of water resources may be of even greater immediate concern than land degradation. The agricultural sector is, by far, the thirstiest consumer of water in the United States, accounting for over 80 percent of total use. Surface and groundwater irrigation is applied to 25 percent of

total farm production and is especially important in western regions where most irrigated acreage lies. A primary problem is the nonrenewable nature of some water supplies.<sup>11</sup> Increasing irrigation and declining water tables have resulted in increasing costs to farmers. Coupled with the quantity water aspect, increasing amounts of farm-related chemicals and wastes have contributed to agriculture's burden on water quality, especially the rising salinity levels.

In addition, future increases in nonfarm water consumption will undoubtedly bring greater pressure to change the system that once offered cheap and abundant supplies. More efficient management of water resources by farmers and public agencies will need to be developed as the resource base tightens. Present and future policy must anticipate these transformations in the state of natural resources and recognize the changes in prices and other incentives that will be required to effectively manage this common property resource.

#### 2.2.7. Specific Commodity Settings<sup>12</sup>

Few government programs that invite contention are broadly aimed at agriculture in general. Most are designed to aid particular commodity groups and, therefore, affect differently a variety of economic and political interests. The emphasis on individual commodity programs has contributed to the growth of numerous interest groups that take part in the policymaking process. Food and feed grains (and, in part, cotton and rice) are traditionally the main considerations in policy debates due to their widespread production, volume and value of output, and the large number of farmers involved. These products are also regarded as "basics," giving them an aura of historical importance for society's welfare. In addition, food and feed grains make up a significant proportion of exports which have recently occupied--and will continue to



occupy--the attention of agricultural policymakers. Macroeconomic and international links are likely to be principal concerns for producers of these commodities. More than for most other farm policies, the integration of nonagricultural variables (interest and exchange rates) into program operations will be considered in the future.

Food and feed grains are the biggest recipients of Treasury transfers to the farm sector. Acreage controls and price supports have been used extensively for many years although their effectiveness has been increasingly questioned. For the immediate future, grain prices are unlikely to rise significantly, and demand will remain weak relative to the past decade.

Dairy policy has lately acquired some degree of notoriety. The general feeling in the community of farm policy watchers is that "something will have to give" in future dairy programs. Until recently, production has continued to grow faster than consumption, and U. S. Department of Agriculture purchases have been high. The dairy industry is characterized by marketing orders and price supports which have been motivated by desires to stabilize prices and enhance incomes. Yet, price supports have risen faster than the general price level, and marketing orders are perceived to effect collusion. The very success of dairy producers, in influencing government programs for their benefit in the past, will make them highly visible targets for policy changes.

Past government policies to control supplies have been almost certainly capitalized into the value of the resources used in milk production, especially dairy cows. The public has borne the costs through higher prices and storage expenses. Recently, however, payments have been made to reduce the level of production, thus lowering the high cost of restricting supplies to consumers. Although to what degree is uncertain, traditional supply

manipulation will become even more difficult and costly as technological advances contribute to higher yields.

Sugar is another commodity with a somewhat infamous popular reputation. It is also unusual, although not unique, because government support takes the form of import quotas to restrict foreign competition and increase domestic prices. The present U. S. price is several times that of the world market, revealing plainly to the public the result of market intervention. Complicating the issue is the increasing profitability of corn sweetener substitutes for commercial sugar consumers. This effect has been noted, but the links between corn and sugar programs have not been well examined.

Sugar is produced in this country by a relatively small number of beet and cane farmers. The concentration of benefits to a few producers, despite the significant but diffuse costs, has often been used to explain the continuation of policies that create considerable long-term allocational inefficiencies and losses in consumer welfare.

To be sure, there are rationales given by sugar producers for sugar programs as they currently exist; but the pointed deviation of domestic and world prices and the large costs of programs will make sugar, like milk, a commodity of particular scrutiny in the future. World production is likely to grow and the continuing strength of the dollar relative to other currencies will create pressure for increased imports and lower domestic prices.

The livestock sector has suffered for some years in the environment of unstable grain prices and uncertain public policy. The sector is comparatively free of direct governmental intervention, although commodity programs have a significant effect through the influence of feed grain supplies and prices. Import restrictions are in place, aiding livestock producers by reducing competition and raising prices. These restrictions, however, primarily

affect lower quality, lower priced meat products. Thus, low-income consumers are harmed disproportionately.

Commodity programs have two effects on the livestock sector. First, programs tend to raise average prices of grains by offering incentives to reduce production or by restricting supplies available to grain consumers. Second, programs influence the stability of grain prices facing livestock producers by dampening the variability of grain supply flows. This stabilizing effect of commodity programs must be balanced against the destabilizing role played by frequent changes in farm policy. For example, the introduction of the farmer-owned reserve led, in part, to feed grain price increases unanticipated by the livestock industry. The effects on industry dynamics and the costs of adjustment have gone largely ignored.

The livestock sector in general would undoubtedly like to see stable, low prices for feed grains and protein; but it would benefit from policies that trade off price stabilization with higher average prices. The recent past, however, has been, if anything, more uncertain and disadvantageous to the industry because of policy uncertainty. The implications of future policy must also account for the shift in consumption from red meats to chicken and fish. This trend may be due not only to changes in tastes and health concerns but also to recent volatile red meat prices and squeezes on consumers' discretionary income.

In terms of governmental policy, tobacco is a unique commodity due to the use of quota allotments and the manner by which program costs are sustained by producers themselves. Historically, Treasury costs have been kept low as a result of movable quotas tied to stock levels. The tobacco industry is characterized by small acreages for farms and by a traditionally high labor intensity. Elimination of present policy probably would shift the structure of

the industry to fewer and larger cost-efficient farms. In addition, a free market for tobacco would erase the benefit now going to owners of quota allotments which are not typically the producers of tobacco. In the market environment of quotas, the supported price of tobacco and high exchange rate of the dollar have led to increased imports; a change in policy that allows increased production would probably reverse this trend and make U. S. tobacco more competitive in the world market.

#### 2.2.8. Other Groups' Interest

Apart from farm interests, there are several other groups that have particular interest in agricultural policy.<sup>13</sup> Input suppliers benefit from increases in production spurred by increased demand or government inducements. They suffer, as has happened recently, from reduced production. Government programs to slow farm output growth are understandably disliked by producers of seed, fertilizers, machinery, and the like. Their recent experience with PIK has revealed the potential hazards of being left out of the policymaking process.<sup>14</sup> Input suppliers have two goals in mind: increase output to increase the demand for their goods and promote high farm income to allow farmers to invest and take advantage of increases in commodity prices by increasing supply. Farm policies designed to raise incomes by reducing acreage or otherwise restricting output, therefore, will be opposed by input suppliers who would rather see output-increasing and income-enhancing policies.

Banks and credit institutions are, in particular, adversely affected by farmers' financial and income problems. Stable farm incomes are more important to this group than merely high average incomes. The recent depreciation of farmland has caused severe financial stress to some farmers and reduced the overall incentive for farmers to make use of credit opportunities. Creditors

desire agricultural programs that stabilize farm incomes and protect against future financial crises.

Consumers, on average, are better off now than in the past. Commodity prices are relatively low, and consumers have an interest in keeping them so. Programs that restrict supply and raise prices to increase farm incomes are harmful to consumers, although the diffusion of costs over many consumers usually makes opposition to such programs ineffective. Similar to input suppliers, consumers would prefer policies that avoid supply controls; but price stability is also desired, making governmental intervention in supply flows more attractive. In general, however, consumers as taxpayers consider income transfers to the farm sector detrimental. The sensational budgetary costs of PIK and the current problems of financing the federal government have pointed out the consuming and tax-paying public's concern for supports of the farm sector.

Consumers also have an interest in continuing productivity growth--both in the United States and abroad. Federal support for productivity research has protected consumers from rising food prices. Indeed, the trend has been toward ever-decreasing real food prices as agriculture has grown more productive. In addition, consumer and farmer interest may coincide in some policy efforts to expand demand. Food stamps, for example, have been treated both as a partial solution for farm income enhancement and as a benefit transferred to low-income consumers. In broad terms, however, consumers' interests are more apt to coincide with those of assemblers, processors, distributors, and wholesalers. These intermediaries operate, for the most part, with small margins and large volumes; and they would benefit from policies tending to increase production and lower prices.

### 2.2.9. Political Dimensions

There has been a general trend in recent years toward deregulation in all aspects of the government's involvement with the economy. This has come about with a growing respect for the workings of the marketplace and a disenchantment with the government's ability to efficiently manage the economy. The agricultural sector has been protected from the trend toward deregulation, but it has not been immune.

Despite the attractions of deregulation, there is another development that complicates policymaking. Over many years, a participatory (or more pluralistic) democracy has emerged. Interest groups now find it much more profitable to engage in efforts to influence the working of government. No longer do representatives of the people make laws reflecting the relative strengths of their constituent voters. Elected officials and bureaucrats now are lobbied by well-financed groups to effect changes in, or prevent alteration of, the complicated machinery of the state. This is still done in the confines of voter approval, but political power often has more to do with the battle of narrow interests in Washington than with the desires of regionally dispersed voters.

This struggle of lobby groups has continued to grow in agricultural policymaking and represents an increased likelihood that programs designed to attain broad social goals will be altered to reflect the relative lobbying power of narrowly focused groups. Discussion of agricultural policy should take the possibility of political failure into account, or programs could be designed that contain the seeds of their own failure. An example: The farmer-owned grain reserve program was originally planned to stabilize commodity prices and supply; but, following the Soviet grain embargo, it was used

to remunerate farmers by increasing stocks and thus increasing prices to raise incomes. Hence, a program for stabilization became a program for income transfer to the agricultural sector. The result was an ever-growing amount of stored commodities that hovered over the market and placed an intolerable cost burden on the government. A crisis arose and PIK was born as an emergency measure that shifted the immediate burden of cost from taxpayers and farmers to others--input suppliers, especially.

### 2.3. Frequently Debated Policy Alternatives

In this section we review a number of broadly defined alternatives that frequently arise in the general debate over agricultural policy.<sup>15</sup> The following table (Table 1) presents a synopsis of the intended objectives of several proposed policies, including our own (detailed in the next section). A marked box indicates that a policy is motivated by the corresponding goal. This, of course, does not evaluate the realized effects of implemented programs. To be sure, programs would influence the entire range of objectives and depend upon the economic and political environment in which they were operating. The broad alternatives we discuss in the following several pages are free market, reinforced free markets, revenue insurance, flexible loan programs, supply contraction, and demand expansion.

#### 2.3.1. Free Markets

Historically, the inability of an unfettered market to attain the social objectives outlined in section 2.1 has been the principal justification for federal intervention in agriculture. Dissatisfaction with governmental policies and programs, however, has called into question whether tampering with the market leads to problems worse than those which motivated public action in

TABLE 1

Intended Objectives of Proposed Policies

	Transfer wealth to farmers	Reduce agriculture risk	Assure safe level of food stocks	Assure reasonable food prices to consumers	Make farm sector flexible	Protect family farms	Conserve natural resources	Minimize public costs	Avoid policy crises
<b>Free markets</b>				x	x			x	x
<b>Reinforce markets:</b>									
revenue insurance		x		x	x			x	
aid to forward mkts		x		x	x			x	
flexible storage		x	x	x	x			x	x
<b>Supply contraction:</b>									
voluntary controls	x						x		
mandatory controls	x						x	x	
quota/excess production tax	x						x	x	
<b>Demand expansion:</b>									
food stamps	x			x					
export enhancement	x								
<b>Direct income aid:</b>									
negative income tax	x	x			x	x			x
sector income guarantees	x	x							
deficiency payments	x	x		x					
<b>Stock accumulation:</b>									
FOR/CCC loans	x	x	x	x					
flexible loans		x	x	x				x	
direct purchase	x	x	x						x

Source:

Gordon C. Rausser and William E. Foster, "A Synthesis of Major Studies and Options for 1984," The Dilemmas of Choice, ed. Kent A. Price (Washington, D. C.: The National Center for Food and Agricultural Policy, Resources for the Future, Inc., 1985).



the first place; as political attitudes and goals have changed, there has been a growing respect for free-market outcomes. Unsuccessful governmental intervention may be traced either to the technical infeasibility of a public policy or to an adulterated translation of social goals into political reality--the result of political failure. Whether for good or bad, future policy proposals will be more critically judged, relative to the expected results of unregulated private enterprise.<sup>16</sup>

Deregulating agriculture would shift the distribution of wealth from one determined, in part, by the ability of farmers to take advantage of federal programs to one determined primarily by the ability to efficiently manage and produce in a free-market environment. Inefficient producers certainly would be pressured to leave the sector; and their wealth, accumulated as a result of the capitalization of government-sponsored rents into land prices, would deteriorate. Efficient managers would reap most of the benefits of a policy of inaction, and taxpayers would be relieved of supported prices. If farming exhibited increasing returns to scale, then the tendency to large operations would be accelerated. As mentioned above, however, there is good reason to suspect increasing returns to scale in the production of government benefits; therefore, the structure of agriculture may, in fact, move to smaller units under deregulation.

The most drastic effect of a free market may be on the variability of farm incomes. Present programs isolate agriculture from severe changes in the economy and harvests, and eliminating present policies would result in increased uncertainty for producers and consumers. The uncertainty in agriculture, however, is not due only to weather and the working of the marketplace; there is also the uncertainty associated with the political system of farm

programs. There is a trade-off to be made between market uncertainty and policy uncertainty.

Whether or not private storage would compensate for the reduction or loss of government-sponsored storage is an empirical question, but the absence of deficiency payments and loan rates would almost certainly create greater instability in supply. This point also relates to the objective of food security. Unregulated markets would not take into account socially optimal stock levels. If private storage does not completely replace government storage, a policy of free enterprise may decrease the provision of adequate safe food reserves.

Moving to a free market for agriculture would increase the sector's capability to respond to long-run changes in economic conditions. Changes in market conditions--in this country as well as the rest of the world--would be quickly reflected in the returns to farming. Therefore, a more flexible and efficient agricultural sector would be encouraged, avoiding occasional policy crises associated with governmental attempts to shield farming from world market conditions. In addition, the ability of U. S. agriculture to efficiently compete in world markets would be enhanced by the elimination of policies that maintain artificially high prices.

As we have noted above, several past policies that attempted to avoid the outcomes associated with free enterprise have been subject to political crises. A policy of free markets would avoid these additional costs. Great amounts of human and financial resources would no longer be expended for the influence of public policy. Successful producers would be determined by their productive, not political, efficiency. In addition to avoiding political failure of implementation, a large burden on federal expenditures would be eliminated.

### 2.3.2. Reinforced Free Markets

The disadvantages associated with eliminating federal involvement in agriculture have led to several proposals designed to correct the deficiencies of a free market. The major problem of complete deregulation is the increased volatility of prices and farm incomes that would result and the possible displacement of a sizable number of farm operators. Proposed policies addressing this issue take two forms: governmental sponsorship of risk-trading institutions and direct governmental involvement in dampening shocks through commodity storage.<sup>17</sup> Both forms of policy would maintain the essential advantages of nonintervention while reducing the degree of uncertainty facing producers.

Personalized insurance against adverse crop yields is now available. Insurance against adverse price movements has been provided by government loan-for-storage and deficiency-payments programs. These programs have not only set a floor on prices but have been used as income supports as well, isolating agriculture from the realities of the marketplace. Moreover, past programs have not been designed for individual farmers nor have they attempted to charge producers for society's cost of absorbing risk.

Futures markets do afford farmers hedging opportunities. Nevertheless, futures markets have proven unpopular with farmers due to the short term of existing contracts, imperfect capital markets, and the unattractive degree of exposure to margin calls. The use of futures contracts can be encouraged by lengthening contracts to give price protection for two to three years. (The market, however, would be extremely thin for far contracts.) In addition, the government could intervene directly in futures markets, reducing the variability of contract prices and, thus, decreasing the exposure of everyone in

the market. Put options have been suggested as a better vehicle for farmers wishing to hedge against price decreases. First, purchasing options would remove farmers' exposure to a long string of margin calls. Second, the premiums the farmer would have to pay for price insurance could be subsidized to encourage options use.

Any attempt to reinforce the workings of a free market is necessarily subject to political manipulation. For example, once in place, a system subsidizing the use of put options for farmers would carry the potential for subsidies to be used to transfer wealth to agriculture. In some sense, overly inexpensive insurance would induce overly risky production behavior by farmers. As another example, establishing stock subsidies for price stability and food security also leaves open their later political manipulation as a means of enriching storers.

### 2.3.3. Revenue Insurance

Revenue insurance is an appealing idea in theory and has attracted much attention, but proposals for this plan are still quite general (Congressional Budget Office, August, 1983). A farmer would choose to insure gross revenues at some level--the premiums being based on this level and on farmer and farm characteristics. Revenue insurance would be a more individualized risk-management tool than the present system of programs. Using private benefits and costs, a farmer would select the level of insurance desired rather than having to take a package of loan rates, diversion requirements, payment limitations, and other program restrictions.

Farm revenue is difficult to insure. The lack of independence of losses is the most severe problem; if the price is low for one farmer, it is low for all farmers. This exposes an insurance company to great financial risk and

makes large premiums imperative. Moral hazard further complicates the insurance problem: Once a farmer insures his revenue, there is little incentive to allocate resources appropriately. For example, to avoid some of the problems of moral hazard, premiums could be made contingent on the continuation of historical average yields. Revenue insurance would also have to contend with adverse selection. Insurance would be most attractive to those who are least adept at risk management; and those experienced at using other means to manage risk, such as the futures market, might not purchase revenue insurance. Despite these difficulties, private insurances could offer revenue insurance; but high premiums would severely limit farmer participation.

#### 2.3.4. Flexible Loan-Rate Policies

Commodity storage programs are intended to moderate price fluctuations by the accumulation of government stocks or by the subsidization of private storers. Traditional stabilization tools, however, have been notoriously unresponsive to market signals, burdening farm policy with costly and sometimes embarrassing levels of stocks. In response to this problem, the recently implemented system of storage programs are flexible (i.e., market-conditioned) loan programs. Loan rates are to be responsive to market signals and vary depending on the economic environment.<sup>18</sup>

When program instruments are left unadjusted as the economic environment changes, a policy disequilibrium develops: The tools are no longer appropriate for, and perhaps contrary to, the original policy objectives. This leads to a policy crisis when dissatisfaction with either program benefits or costs is so widespread that a change in policy becomes inevitable. Under the 1985 Food Security Act, flexible loan rates, however, change as the economy changes and, therefore, help avoid policy crises.

### 2.3.5. Supply Contraction

Past governmental intervention in commodity markets has tended to support excess supplies through the maintenance of higher prices than the market would otherwise allow. Price supports do serve the purpose of raising and stabilizing farmers' incomes, but the government is left with absorbing the cost of storing large amounts of grain. The ability to manage ever increasing stocks is limited both financially and politically; the inevitable result is a change in policies and an increase in the uncertainty regarding governmental action. Recognition of this tendency to increase commodity supply has led to acreage controls, marketing orders, and pressure to divorce income support from production. Acreage controls are only crudely effective because supply does not correspond exactly to the amount of farmland under production--the slippage problem. Marketing orders traditionally have been applied to agricultural commodities where producers are regionally concentrated and easily organized. Orders also tend to weaken farmer independence and are popularly perceived to effect collusion as in the case of milk.

Different methods of supply contraction, both mandatory and voluntary, have been used since 1933 in efforts to increase farm returns. Restrictions on supply can be used alone to raise market prices or to counter the incentives to increase output provided by production-based, income-support policies. The voluntary (paid and/or unpaid) acreage set-aside program is the current policy tool; but due to free-rider and slippage problems, it does not effectively reduce production. It has proved, therefore, a rather expensive program given the limited results.

### 2.3.6. Demand Expansion

Demand expansion is popularly perceived to be an easy solution to the problem of low farm incomes brought about by low prices. Other historically

popular policy alternatives for raising incomes are supply restriction, which is unpalatable to farmers who must cut back production, and direct payments to farmers which are costly to the government and too obvious to be politically attractive. Demand expansion, however, does not typically require any unpleasant adjustments by U. S. farmers. Unfortunately, private domestic demand and government demand are unlikely to expand significantly (particularly after PIK), and exports of major commodities have decreased substantially in the early 1980s. Most proposals for expanding demand concentrate on the foreign market. This is, however, not a perfect solution; as farmers expand into foreign markets, they face more price instability since prices are subject to international shocks in supply and demand.

A general approach to expanding demand for U. S. farm products involves policies to enhance the economic performance of other countries. In part, due to international trade links, the worldwide economic downturn and U. S. macro-economic policies weakened export demand considerably. With the recouperation of the U. S. economy, foreign economies and trade prospects are likely to improve; but continued maintenance of high interest rates and the strong dollar will dampen growth in foreign demand.

Another long-range policy to expand export demand is to use U. S. agriculture's strength and abundance to improve economic conditions in less-developed countries. Many charges have been made that P. L. 480 type programs undermine production in recipient nations contrary to humanitarian goals. Several policy analysts, however, currently suggest that special, carefully crafted aid to poorer countries, in the form of agricultural products or long-term credits, can foster economic development. This would offer immediate outlets for U. S. commodities. Furthermore, as less-developed economies grow with such aid and consumer incomes rise, import markets would improve.

In addition, there are two more direct approaches to solving the problem of low foreign demand for U. S. commodities: either lower the domestic price of commodities or maintain the high domestic price but subsidize the export price directly through credits. Lowering the domestic price is not, in general, a popular policy; therefore, subsidized export plans have generated much interest.

### 3. A Coherent Agricultural Policy

The previous sections discuss the incoherence of current agricultural policy, the possible goals that policy must pursue, and the environments (or states of the world) in which policy must operate. On this basis, we present our proposals for a more coherent, effective farm and food policy.

Our treatment will be necessarily broad in its presentation of the proposed programs. Instead of offering detailed mechanisms or numerical values that would eventually be associated with these proposals, we wish to focus attention on the basic ideas, the underlying motives, and the ultimate implications of our policy design. Some of what we offer may be found in existing programs, some are variations on familiar themes, and some are novel concepts that should be exposed to public debate and, at a minimum, need the tempering of critical examination.

Our purpose is to design a prescriptive, coherent policy. We have given no thought whatsoever to the political feasibility of how it might be brought to realization. Nevertheless, the existence of what we term political failure must be explicitly addressed if a new set of programs is to meet chosen goals in a coherent manner. The national political process that determines these goals and the means of policy must also make it difficult and costly for any group to misdirect the details of programs from their original intent. This



means not only insulating (from manipulation) bureaucratic discretion over programs but also protecting the instruments of policy from narrow legislative concerns.

Once the social debate over goals and policy is closed, there should be sufficient disincentive to change bits and pieces of policy for the purposes of undermining the large consensus. This is not to say that legislative discretion is undesirable or that further debate over basic issues should be avoided as mistakes and/or new signals emerge. Rather, if the U. S. Department of Agriculture or Congress wishes to alter programs, then the alterations must complement the original design. As is painfully evident in present policy, the incentives for small coalitions to take advantage of the potential for political failure have led to a badly fashioned policy. Different parts may please different tastes, but the policy in its entirety pleases very few.

The challenge, then, is to design programs that focus on certain goals, such as preserving the family farm and reducing agricultural instability, yet at the same time substantially mitigate political failure so that these goals may be attained. An effective mitigation of political failure may be found in the very nature of a program's design. For example, one possibility is to make the program's effects widespread and largely independent of specific characteristics that may define small interest groups. Present policy is made up, to a large degree, of programs targeted at particular groups. A widely applied program makes costly the formation of coalitions (they would have to be large) that might subvert the intent of policy. Even if coalitions do form, changes in a widely applied program are quickly evident to all other groups, making successful alteration difficult. If changes do arise, they are likely to reflect the national consensus rather than its subversion.

Another approach is to design elements of a program specific to a single objective. Too often, current programs attempt to address too many objectives. As a result, manipulation is easier when a particular program's policy instrument is confused about its targets or goals. The storage program used for both stabilization and income transfer is just such a case. Connecting a program much more closely with its objective makes obvious to all any attempt to move the program's intent toward that of a special interest, thus lowering the probability that the attempt will succeed.

Of course, the legislative process may need to include additional protective measures that make nonconsensual program changes costly for specific groups to attempt. Such measures might include boundaries on program instruments (much as we have legislated lower boundaries on loan rates and target prices) and legislated delays before proposed program changes can take place.

One additional measure is a cap on expenditures, an example of which is the Gramm-Rudman budget ceiling. As we have discussed in a previous section, Gramm-Rudman reflects the public's desire to reduce deficits in a dynamic heavy-handed fashion. Congress, in a sense, has prevented political failure in implementation of society's broadly expressed intention.

### 3.1. Specific Proposals

Given the above preliminaries, we now turn to specific proposals for a more coherent agricultural policy. The proposals are offered to address both the broad social goals outlined in the second section and the problems of political failure. Each program is designed to be widely applied, or available, to agriculture and closely connected to a specific objective.

Our newly proposed programs imply the elimination of commodity-specific programs as the basis of policy. Commodity programs have become vehicles for

income transfers to larger farm operations, and they offer primarily a band-aid approach to farm problems. They are simply too easily manipulated by specific interest groups to be successful.

Commodity programs are the worst examples of the incoherence of present policy. As we write, for instance, we see the Dairy Buyout Program attempting to deal with the overproduction induced by governmentally supported prices; and, at the same time, the livestock industry is in court trying to stop the program in order to prevent the meat-price decline that it is feared will result. The conflicts generated by the present system of programs are not just between commodity groups. Within commodity groups, some types of farmers, often those who need little help, gain more than others. Target prices, loan rates, and diversion requirements can be influenced so that particular farmers may take greater advantage of possible benefits, while taxpayers and other farmers suffer the burden of "captured" programs. In essence, we propose that commodity programs be replaced by a set of programs available to all agricultural producers.

### 3.2. Minor Changes in Current Programs

Not all present programs are without value in terms of the objectives presented in section 2. In fact, several actually work and are worth maintaining, perhaps with minor changes. If these programs do conflict with other components of agricultural policy, then we should examine, change, or eliminate the other components.

Low-income food subsidies, for example, should be maintained. They go far in achieving social goals of equity, and they also expand the demand for food production. Certainly, there are anecdotal stories of defects in the Food Stamp Program, but there is sufficient evidence that it is effective. Society

may consider revising the existing system of low-income food subsidies, perhaps even eliminating it in favor of more direct income supports. While changes in the present system might reduce food demand, it is less a matter of agricultural policy than basic decisions regarding social welfare.

We also propose that the system of food inspection and regulation be maintained largely in its current form. The prominence of public health goals not only reflect growing social concerns but tend to support consumer demand by maintaining confidence in U. S. agricultural production. Perhaps we should channel more resources into the regulation of those chemicals that may find themselves in products for which they were never intended. The incidents with heptachlor-contaminated milk in Hawaii several years ago, and on the mainland recently, are instructive lessons on the dangers of these inadvertent contaminations.

One set of government supports that we propose to maintain, but with altered emphasis, is that for agricultural research. We suggest a greater emphasis be placed on the principle that the burden of research expense be proportionately shared, based on the benefits accruing to various groups. Taxpayer support for research is presumably based on the notion that benefits are widely spread across consumers and producers. Unfortunately, this is not always the case. In addition, we suggest that the government reduce its support of research that may potentially result in larger, more capital-intensive farms. The structural effects of some applied research is often contrary to the goals of maintaining the family farm, rural communities, and the aesthetic rural landscape.

In order to make these changes effective, we propose that potential recipients of large federally applied research grants detail, for the public's

inspection, the economic consequences of whatever results from their research. We suggest a sharper review of proposed research, independent of researchers' technical competence, that estimates the socioeconomic changes that may ensue. This means an account of the winners and losers and the ultimate effect on the industrial structure of farming. Something like this is already in place where researchers underscore all possible benefits of their work. The trouble with the present system is the lack of purposeful integration of research with broader agricultural policy.

### 3.3. Newly Designed Programs

We offer six newly designed programs as the basis of farm policy that would replace the present system based on current commodity-specific schemes:

(1) Tax Policy. Structuring a new tax policy for agriculture is perhaps the most difficult challenge society faces in managing the farm system. Taxes are, by their nature, wide ranging with myriad effects both direct and indirect. In addition, tax policies could never be restricted to certain industries--designing a new one cannot be an isolated exercise just for agriculture. Anyone whose attention is focused on farming must remain circumspect in approaching a new tax system that "solves" agriculture's problems. We do, however, have a few broad proposals.

A better tax policy would encourage greater neutrality across industrial sectors in the economy. That is, it would treat food and fiber producers as other nonagricultural business firms. Such a policy is needed primarily to discourage two problems. First, investment in agricultural assets often has a component unrelated to production, especially investment in farmland. Investment of this nature separates the value of land from its productive worth.

Second, the current tax system, in some ways, subsidizes investment in capital-intensive production. In particular, large operations can take greater advantage of these subsidies than smaller ones, further skewing farm structure from social goals. The relative attractiveness of capital gains, artificially short depreciation periods, and investment tax credits should be avoided.

(2) Targeted Income-Deficiency Payments. We propose that the government provide direct income transfers to farmers based on certain characteristics society wishes to maintain. A program of targeted income-deficiency payments would not only serve to reduce the instability of farm income but also go far in achieving the goals of equity and preserving the family farm and rural community. Deficiency payments would be targeted based on the value of farm-production assets controlled by the recipient. Such assets include farm machinery, farm buildings, and arable land owned and rented. It would exclude the farmer's house and other assets not directly related to farming.

The government would set a targeted farm income, say, for a family of four, that would be maintained if the recipient falls within some range of farm-asset values. For example, the farm income to be targeted could be \$10,000 and the range of asset values for subsidization could be between \$75,000 and \$400,000. A lower limit for asset values is needed to exclude many who might otherwise be classified as farmers but enjoy other off-farm sources of income. By making up shortfalls in farm income in this manner, society discourages farmers from moving the size of their operations beyond the limits eligible for the program.

The government could make use of farm appraisers to certify the value of productive assets. A farmer might reduce the "program" value of his assets by

giving up ownership of land to family members and relatives, still retaining control over the land's productive capabilities. To remove this possibility, we propose to establish a rule that prohibits a farmer in the program from transferring land (by sale, lease, or gift) to family members unless the receiver of the land establishes independent control over the land. Severe penalties should be established to prevent collusion among persons who attempt to satisfy the means test for qualifying to receive the targeted deficiency payments.

(3) Anticyclical Credit Program. In order to reduce the instability generated by linkages with macroeconomic and international exchange rate fluctuations, we propose a government-supported credit policy for farmers that dampens the swings in agricultural investment. This particular policy instrument must be designed to address failures associated with incomplete risk markets, lack of equity capital, and "overshooting" resulting from sticky non-agricultural prices and the short-run nonneutrality of money.

Farm credit system interest rates should move by an established rule in the same direction as agricultural prices. As prices rise, interest rates should also, dampening the expansionary effects on investment and land values. As prices decline, interest rates should fall, mitigating the farm credit problems that might result due to income drops and asset devaluation.

Farm interest rates should move such that they follow market rates. How closely they follow market rates would depend on recent changes in farm prices. If farm prices are stable, then farm rates should equal market rates. The connection between farm interest rates, market rates, and farm prices should be a well-understood rule written into law. The farm credit system should be self-financing. It should also offer only adjustable rate

loans with penalties for early payment, in order to prevent larger farmers, with easier access to other credit sources from taking advantage of periods when subsidies exist.

(4) Flexible Storage Rules. Just as the proposed credit policy confronts the instability generated in the larger economic system, a program of flexible storage rules would confront the instability generated within the agricultural economy. Current commodity storage programs are intended to moderate price and supply fluctuations by the accumulation of government stocks or by the subsidization of private storers. Traditional stabilization tools, however, have been notoriously unresponsive to market signals, burdening farm policy with costly and sometimes embarrassing levels of stocks. We concur with several circulating proposals to establish a program that would be responsive to market signals and vary depending on the economic environment.

When a storage program's instruments are left unadjusted as the economic environment changes, they are no longer appropriate for, and are perhaps contrary to, the original policy objectives. This leads to a crisis when dissatisfaction with either program benefits or costs is so widespread that a change in policy becomes inevitable. A flexible storage program, however, would include instruments that change as the economy changes and, therefore, help avoid drastic shifts in policy. If the 1981 Farm Bill had included flexible storage programs, for instance, loan rates could have been conditioned on variables such as stock levels, prices, etc. If loan rates had been a known function of prices and stocks, they would have declined as world prices fell in the early 1980s. The government would have avoided the buildup in stocks and the disorienting effect of a major change in policy (PIK).

We propose a scheme similar to that of Just and Rausser. The government would determine some target level of stocks based on Treasury costs and the



need for safe reserves to meet the goal of food security. The government would also determine a target price and buy or sell a certain amount of a commodity for every 1 percent (say) decrease or increase in price around this target level. Conditioning the target price on the level of stocks would reflect changes in the economic environment and avoid unmanageable divergence between world prices and target levels.

When designing new programs, there is a tendency to leave ample discretion in the case where programs do not respond to changes in the economy in the anticipated manner. Discretion, however, must be minimized in a flexible policy scenario, or political failure in implementation of programs is likely to result. Devising appropriate adjustment rules would be a formidable task, requiring legislative attention to current economic conditions and also to future exigencies. In addition to large initial setup cost, administrative cost may be high because variables in the economic environment would need to be closely monitored. Needless to say, storage costs would be more closely contained and easier to predict.

This proposal would certainly deal with the problems of instability and food security, but it also would tend to promote greater efficiency in agricultural production. A flexible policy would not completely isolate farmers from price changes. Instead, it would encourage farmers to respond to market signals (become more adaptable) because the government would not be promising total insulation of the farm economy which it ultimately cannot provide.

(5) Conservation and Environmental Programs. Issues of agricultural conservation and the environment will continue to grow in importance. Our proposals for conservation and the environment reflect a long-run perspective. Several of the proposals already discussed would aid in achieving social goals

of conservation and environmental protection. Targeted income-deficiency payments are meant to encourage smaller farming operations or at least slow the growth of large, capital-intensive farms. An anticyclical credit program would help reduce the incentives for intensive land use that arise during periods when farmers, in a survival mode, seek to increase their immediate cash incomes to deal with credit problems. Finally, perhaps most significantly, the elimination of commodity programs that connect income supports to production levels would ease the extensive and intensive use of land and other resources in production.

We have several additional proposals with greater specificity to the problems of conservation and the environment. First, we propose that the current incentives available for long-run retirement of erodible land be increased. This should be a long-term project that is managed less by traditional bureaucratic authority over agriculture and more by agencies further removed from immediate farm concerns. This would help assure that conservation goals are not forgotten or down played in the political process focused mainly on problems related to the profitability of farming.

We also propose to offer incentives to decrease runoff problems and chemical use. The government, again through agencies not immediately concerned with agricultural production, would give investment credits or subsidies to farmers who set up systems that reduce environmental problems. This could be done in much the same way as we have encouraged energy conservation, solar and other alternative energy sources, and the like. This would, however, have to be a recognized long-run program. These subsidies could be funded, in part, by an additional environmental program to tax fertilizer, pesticide, and other chemical use. After all, these productive resources are the source of environmental externalities.

All programs, changes in programs, and proposed programs should be subject to conservation and environmental impact studies. A measure of this type would serve to bring greater public attention to the nonfarm effects of agricultural policy instruments. It would increase the difficulty for small groups to bring about policy changes that have limited, direct consequences but far-ranging, indirect effects.

Finally, we propose that the government support more intensive research into conservation and environmentally safe programs and systems that farmers might find profitable to implement. We think it is particularly important to examine water use from common-property resources such as federal water projects and aquifers. Water projects tend to promote production and more intensive use of resources. How can we best design project management, price water, or otherwise limit the long-range conservation and environmental effects of federal water policy? Similarly, we must structure tax or subsidy schemes to reduce the common-property problems associated with drawing water from depletion-troubled aquifers.

(6) Cooperative Export Subsidies (Taxes). We now turn to the most innovative of our proposals--that of cooperative export subsidies (taxes). It is sure to elicit the sharpest criticism from our colleagues in the agricultural economics profession due to its greater, not lesser, emphasis on federal involvement in international commodity trade. We propose to establish an agreement between certain commodity-producing countries to subsidize or tax, on a case-by-case basis, the export of commodities. This is in part to make even more costly the subsidization that goes on routinely by countries wishing to transfer wealth to their own agricultural sectors.

Our suggestion is to manage, to discourage, and to prevent the political failures in other nations that indirectly affect more efficient commodity

producers. The EEC spends vast sums subsidizing its agricultural producers, drawing out supplies that would otherwise not be there, and depressing world prices. European consumers and taxpayers carry the immediate burden of such policies, but the farmers in other nations who lose export markets also suffer.

This is a proposal for a collusive strategy that would create incentives to change the nature of political failure in foreign governments. Yes, it is a form of economic retaliation, much as Saudi Arabia is currently punishing non-OPEC members, defectors, and anyone who invested in energy-related projects when oil prices were high. Many individuals and countries will think twice about taking advantage of Cartel-supported prices in the future to expand their own production. But while Saudi Arabia may or may not be making its competitors bear a cost today so that higher prices are monopolistically engineered tomorrow, we propose retaliation so that we may be closer to free international trade in years to come.

Some have proposed a grain cartel to increase world prices, claiming that the importing policies (quotas and tariffs) of some countries restrict free trade and lower prices.<sup>19</sup> These proposals, unfortunately, neglect the supply response problem which must be effectively managed along with the demand problem. We must be assured that, if we do peg a "fair" price for world trade, there is no defection or significant supply response from nonmembers. We must make a credible threat that we will not tolerate exports from countries that have no business in international markets. This is not to say that we should attempt to keep out countries that can efficiently compete with already established producers. As national economies develop, we may even find ourselves in the ranks of the inefficient; but let that be a matter of freely trading markets rather than the result of low prices generated by countries' domestic politics.

We propose that the cooperative export subsidy work in the following fashion. Each country in the cooperative effort contribute to a subsidy fund in proportion roughly equivalent to its share of the groups' exports. On a commodity-by-commodity, period-by-period basis, a sufficiently low world market price is targeted; and cooperating countries, through subsidies, expand exports. They would do so keeping their export shares constant to each other and maintaining the targeted world price. The cooperative effort would continue matching subsidy after subsidy with offending nations until the inefficient producers adjust their domestic agricultural policies. The cooperative effort would, in effect, underbid every nonmember, gaining a greater share in the world market. Membership would be restricted to those countries that would survive as exporters if all export subsidies were ended.

In some ways, the United States, with the dropping of its loan rates, is unilaterally doing something similar today; but we are also hurting the Canadians and others who, although competitors, are not the offenders. Today's environment, under the 1985 Farm Bill, is much more conducive to forming such a cooperative effort. Once a cooperative effort was established and successful at dealing with the supply problem, then the demand problem could be confronted. A cartel-like framework would have been formalized and test run under conditions that would not have eroded its cohesion; and potential competitors would have been credibly warned against investing in the bureaucratic, political, and economic resources necessary to challenge the cooperative group in the export market. In effect, the cooperative export group would have established the creditability for effective strategic behavior. Such behavior could manage the supply response incentives while confronting the monopsonistic practices of many importing countries. These latter practices are also

the direct result of political failure which is often motivated by the desire to effectively protect whatever domestic food production occurs. To counter these practices, a cooperative export tax would be introduced. This, too, essentially increases the cost of these political failures.

#### 4. Concluding Remarks

The political feasibility of the proposed set of programs can be seriously questioned. In fact, after reviewing this proposal, Public Policy students at Berkeley argued strongly that the proposal would never be adopted by the political process. There can be little doubt that the chances of implementation of such a program involving the elimination of property rights that have been established over the years through existing commodity programs is, indeed, unlikely. Nevertheless, as argued elsewhere, policy disequilibriums do arise and often lead to major crises (Rausser, 1982). When major crises occur, a number of possibilities exist.

Under the 1985 Food Security Act, policy disequilibriums are very likely. This is, in large part, due to surprises in budget expenditures needed to support various provisions of the 1985 act. If the costs of the 1985 act exceed (by significant amounts) current expected levels of expenditures, a major crisis may be precipitated. In this event, it is important to be positioned with a well-designed, coherent policy program. In the face of major policy disequilibrium, a well-designed policy program must be waiting in the wings to have any chance whatsoever of adoption.

Interest groups would most certainly oppose the design that has been advanced here. However, in a crisis, their opposition will prove ineffective. On a more optimistic note, there is also some hope for success analogous to

the recent experience on tax reform. Who would have predicted the current support for the U. S. Senate Finance Committee proposed revisions of the U. S. tax code?

Ultimately, what we desire is a long-term, stable public policy whose transfers (both income and wealth) are made explicit. Unfortunately, current U. S. agricultural policy disguises these transfers. To be sure, this is what interest groups and public officials prefer. The general public will find it more difficult to understand transfers that are implicit and well disguised. The implications of such policies are difficult for the informed layman to unravel. To alleviate this circumstance, we have attempted to design a set of policies which make all transfers explicit. If implemented, informed citizens and potential opposers to such transfers may then more efficiently counteract such policies. Only in this fashion will it be possible to ascertain the wishes and desires of all members of society.

Footnotes

\*Robert Gordon Sproul Chair Professor and graduate student at the University of California, Berkeley. Much of what appears in the second section may be found in Calvin, Foster, and Rausser; also in Rausser and Foster.

<sup>1</sup>For four additional treatments of goals of agricultural policy, see Calvin, Foster, and Rausser; Gardner; Knutson (1984b); and Paarlberg.

<sup>2</sup>LeBlanc and Hrubovcak examine tax policy and the effects on agricultural investment. They conclude that a significant share (20 percent) of investment in farm assets can be attributed to tax policy; see also Harl.

<sup>3</sup>For good reviews, see Sumner, National Agricultural Forum, and American Farmland Trust.

<sup>4</sup>For instance, see Zilberman and Carter and also Hefferman. Zilberman and Carter note that land diversion programs generally advance larger farms, while price and income supports may favor midsize farms. This last point is empirically supported, in the case of Texas, by Smith, Richardson, and Knutson.

<sup>5</sup>For a study on this topic, see Tweeten.

<sup>6</sup>For a review with emphasis on current policy, see Stucker and Collins.

<sup>7</sup>A discussion of biotechnology research and grain production is found in Duvick.

<sup>8</sup>Schuh (1984) elaborates this point.

<sup>9</sup>For a review of institutional arrangements in world commodity trading, see the Congressional Budget Office report (June, 1983). For an outline of the changing nature of agricultural trade relationships between the United States and other countries, see Josling.

<sup>10</sup>For three reviews of this issue, see Batie; Benbrook, Crosson, and Ogg; and Farrell, Sanderson, and Vo.



<sup>11</sup>Kneese discusses the particular case of the Ogallala aquifer.

<sup>12</sup>For studies on the specific commodities discussed in this section, see Babb (dairy policy); Schmitz, Allen, and Leu (sugar); Ray, Tweeten, and Trapp; and Hoover and Sumner (tobacco). The Economic Research Service of the U. S. Department of Agriculture has published several good Commodity Backgrounds for 1985 farm legislation.

<sup>13</sup>Overviews of various interest groups are found in the National Agricultural Forum's report on farm policy, Abel and Daft, and Knutson (1984a).

<sup>14</sup>The Fertilizer Institute, for example, in preparation of the 1985 legislation, developed their first policy proposal in their 102-year history (The Wall Street Journal, November 23, 1984, p. A9).

<sup>15</sup>For a valuable and thorough presentation of alternative policy tools, see Knutson and Richardson.

<sup>16</sup>Pasour discusses the free market and farm problems.

<sup>17</sup>Petzel reviews futures, options, and comparable insurance schemes as substitutes for commodity programs.

<sup>18</sup>Just and also Just and Rausser analyze automatic adjustment rules, or conditional program instruments, with respect to agricultural policy.

<sup>19</sup>Schmitz et al. detail the issues, problems, and benefits of a grain export cartel. Schuh (1985), on the other hand, dismisses the idea.

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