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U.S. FOOD AND AGRICULTURAL POLICY:  
1985 AND BEYOND<sup>1</sup>

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Your seminar series, United States Agricultural Policies for 1985 and Beyond, is very timely. The Congress has already begun preparatory hearings and numerous institutions have initiated special studies on issues likely to be important in the 1985 legislative debate on policy to succeed the Food and Agriculture Act of 1981. The papers presented in the series of seminars will enrich the forthcoming dialogue.

Unlike the topics of several of the preceding papers in this series, the topic assigned to me is broad and general. Accordingly, my remarks are in three parts: (1) the prospective economic setting of agriculture in the remainder of the 1980s and into the 1990s, (2) policy issues arising from that setting, and (3) policy objectives and options around which future legislation might be constructed in 1985 and beyond.

The Prospective Economic Setting of Agriculture

I need not dwell on the "roller-coaster" of economic events in agriculture in recent years. Suffice it to say that if Nobel prize winner Theodore Shultz were inclined to write a sequel to his 1948 classic, Agriculture in an Unstable Economy, now is the time to do it!

There is no doubt that recent events have caused financial stress for a sizeable number of farm operators. FmHA and commercial lender foreclosures have been rising for several months. As much as one-third of FmHA loans are reported to be in arrears, but then delinquency rates on FmHA loans have been comparatively high for many years. The net worth of farm operators has declined some 15 percent since 1980 and the debt/asset ratio has risen from 16.5 to 20.6--still a low ratio by non-farm business standards.

On balance, however, the financial position and productive capacity of agriculture as a whole remain strong though tarnished by a liquidity problem emanating from high interest rates, highly leveraged capital investments by some operators, and low prices for some commodities. Although further short-term policy changes may be appropriate to facilitate adjustments to the current financial squeeze in agriculture, the development of long-term policies should be based on long-term relationships, not the circumstances of the moment. In approaching legislation in 1985, we should avoid the trap which ensnared parts of the 1981 Act--the error of assuming that the future will present a mirror image of the present or recent past. What seems needed is a candid, dispassionate assessment of the realities of agriculture and where these fundamental realities may take us in the future. To do otherwise is much like setting out to sea without either chart or compass!

It is true that such assessments do not yield unequivocal results. The future is unknown, uncertain, and unpredictable for mere mortals. Nevertheless, we cannot afford to cope with the future by simply stumbling from one short-run crisis to another. Some course of direction must be set, some public and private planning must be done to shape the future albeit highly contingent planning. The need is to devise a forward-looking course that is consistent with long-term national goals yet sufficiently flexible to adjust to short-term, unanticipated tempests.

As part of a broader assessment conducted at Congressional request by the Joint Council on Food and Agricultural Science, we at the National Center for Food and Agricultural Policy at the Resources for the Future agency recently completed an assessment of potential global demand for U.S. food, fiber, and forest products to the year 2000, the U.S. capabilities to respond to such demand, and some of the public policy implications of doing so.<sup>2</sup> I will merely summarize some of the highlights of our assessment which seems most relevant to our purposes today.

## Major Projections

### Global Projections

(1) World population, although slowing in growth, will increase nearly 40 percent or 1.7 billion persons by 2000 relative to 1980. More than 90 percent of the growth will be in the six least developed regions of the world. Between 2000 and 2020, population may increase another 1.8 billion to nearly 8.0 billion persons--almost double that of 1980.

(2) Global economic growth, rapid during the 1970s, will be comparatively slow in the 1980s as economies recover from recession and in the case of several developing countries, strive to manage large external debts while restraining inflation. With an appropriate mix of development policies, and an environment conducive to international trade and capital investment, economic growth could accelerate in the 1990s. But growth prospects are particularly fragile and tenuous in two regions, Latin America and sub-Saharan Africa.

(3) At real prices approximating those of 1979-81, effective global demand for (consumption of) agricultural and forest products will expand substantially by 2000 as a result of population and economic growth--about 60 percent for income-sensitive commodities such as meat, oilseeds, and processed forest products, close to 50 percent for cereal grains, and 35-40 percent for milk and natural fibers. By 2020, effective global demand could more than double for income-sensitive commodities and increase as much as 90 percent for cereal grains.

(4) The world possesses the potential to feed a growing population of 6.2 billion people moderately better by the year 2000 than it fed 4.3 billion in 1980. To do so will require large investments to improve the infrastructure of agriculture, increased investments in research and education to stimulate development and application of productivity-enhancing technologies, public policies to provide greater economic incentives to agricultural producers, and expanded international trade. Close to 85 percent of projected production increases will be dependent upon increased productivity of resources, 15 percent from expansion of the cultivated land base.

(5) World trade in agricultural and forest products will need to grow substantially (3.4 percent annually) to meet effective demand resulting from the disparate regional patterns of economic and agricultural growth to the year 2000--significantly slower than the growth of 4.3 percent per year in the 1970s. The patterns of projected trade indicate there will be continued concentration of grain exports among a few surplus regions including North America and substantial increases in imports in Asia, Africa, and the Middle East. Grain imports of the USSR are projected to stabilize around 30 million metric tons annually.

(6) Even with the projected modest increases in per capita food supplies and consumption, the global food supply-demand balance will be tenuous and marked by substantial year-to-year instability. Large numbers of people in the developing countries unable to share in economic growth

will continue to be undernourished. That problem with its important global political implications must be dealt with through a variety of economic and food assistance programs.

### U.S. Projections

(1) Output of U.S. agricultural and forest products increased nearly 40 percent in the past two decades. By 2000, production of cereal grains, oilseeds, and forest products will need to increase another 30-40 percent and that of other major products about 20 percent. By 2020, needed production of major crops may be 70-100 percent above that of recent years to meet projected growth in demand in domestic and foreign markets.

(2) For the remainder of this century and into the 21st century, the growth in demand for U.S. grains, oilseeds, and cotton will derive primarily from expansion of foreign demand. Growth in demand for forest products, meat, and milk will be largely in domestic markets. By 2000, close to 60 percent of the total consumption of U.S. cotton and soybeans and 40 percent of the consumption of cereal grains will be in foreign markets. Although projected increases in export demand for U.S. products are substantial--64 percent for oilseeds, 53 percent for cereals, 43 percent for cotton lint--growth rates will be well below those of the 1970s when exports of cereal grains tripled and those of oilseeds and cotton doubled. The result of these developments will be twofold: U.S. agriculture will become increasingly cash crop dependent and increasingly export dependent.

(3) The productive capacity of U.S. agriculture and forestry has expanded substantially in recent decades. It can be further expanded through various combinations of improved management of resources and technologies now employed, expanded use of resources, and new or improved technologies to enhance productivity of resources. The manner and extent to which productive capacity will be expanded and utilized depends on a plethora of complex technological, institutional, and economic variables and on private and public choice. The results of our study suggest that the productive capacity for both agricultural and forestry products will be adequate to readily sustain increases in output to meet projected global demand for U.S. products to 2000 at real prices approximating those of 1979-81. This conclusion is based upon several assumptions and projections:

(a) Manufactured off-farm production inputs will be available in ample supply and with little or no increase in real prices for such inputs as a whole.

(b) Technologies in use or now available, coupled with improved management practices, will be employed

more extensively and efficiently under assumed price-cost relationships.

(c) There will be a moderate new expansion of irrigated acreage and more efficient use of water as its price increases, a substantial increase in double cropping, and interregional shifts in crop and forestry production patterns in accord with changing patterns of product demand and comparative interregional production advantages.

One scenario examined in the study indicates that projected U.S. demands for agricultural and forest products to 2000 might be met with a decrease of about 5 percent (21 million acres) in commercial timberland, an increase of slightly less than 10 percent (24 million acres) in harvested agricultural cropland, and crop yield increases of about 25 percent for cereals and oilseeds and 13 percent for cotton relative to 1979-81. The projected increase in harvested cropland, part of which would be fulfilled by increased double cropping, is well within the limits of the estimated 127 million acres of land deemed of high and medium potential for conversion to cropland. The projected growth rates in crop yields are well below those achieved in the 1970s. If crop yields deemed by some to be most probable by 2000 were attained, harvested cropland required to meet projected demand would be nearly 20 percent below that of the 1979-81 average.

(4) Readily available technologies to improve animal feeding efficiencies, the genetic quality of stock, and animal health appear adequate to attain the modest increases required to meet projected growth in U.S. demand for meat and milk to 2000. Intensive forest plantation management and technologies also pose opportunities for substantial increases in forest product productivity and output. With "normal" weather and price-cost relationships similar to those of 1979-81, U.S. agriculture and forestry would appear to have little difficulty in meeting, possibly exceeding, on average, projected growth in consumption in the years immediately ahead.

But to expand productive capacity to permit a near doubling of output to meet projected demand in 2020 without major increases in real prices of food, fiber, and forest products will require major public and private investments in science and education to yield new and improved technologies and management systems to maintain or enhance resource productivity. Without continued growth in total factor productivity, there would be increased pressures on the natural resource base, increasingly serious environmental problems, and ultimately, higher real costs for food, fiber, and forest products.

## Implications

### Resource and Environmental Hazards

Expansion of productive capacity to the 21st century will not be without its costs and hazards. Expansion by more extensive use of land and water resources may bring not only higher economic costs of the resources themselves but risks of further environmental degradation through soil erosion and water pollution. But expansion of productive capacity by more intensive use of current high technologies also will have costs and pose hazards to the environment and the food chain. A shift toward greater dependence on cash crops and increased use of chemicals could enhance such hazards.

### Uncertainty and Instability

Greater dependency upon export markets implies greater instability and uncertainty in U.S. agricultural product markets from variations in weather and from man-made instability in the form of domestic and foreign economic policies. Such instability and uncertainty complicate investment and production planning decisions and are themselves real costs of development. Variations in export demand in an export-dependent agricultural sector could induce proportionally larger variation in domestic farm prices and incomes. Thus, in addition to being required to grow at a substantial, continuous rate into the 21st century, there will be need to maintain a fine balance between supply of food, fiber, and forest products and potentially volatile export demand.

### Related Sectors

Projected growth in U.S. agriculture and forestry will be highly dependent upon an enlarged flow of off-farm and manufactured production inputs ranging from capital to fertilizers, pesticides, biological technologies, and information services. In addition to demand for increased quantities of such inputs, there will be demand for qualitative modifications of those inputs--more energy and labor-efficient machinery and equipment, more control-specific but less environmentally- and health-hazardous chemicals, a more appropriate range of technologies to meet demands of a diverse agriculture ranging from small to large scale. Economic pressures to minimize production costs as well as environmental and other regulation may alter substantially the composition of demand for production inputs.

The projected increased dependence of agriculture on export markets implies expanding opportunities for agriculturally related businesses in facilitating and conducting that trade. That will require expansion and improved quality

of physical infrastructure forward and backward from points of export to facilitate trade; development of improved pricing, credit and transfer mechanisms; expanded and more efficient information systems; and large capital investments.

The general course of development of agriculture during the next decade or two depicted in our assessment--comparatively slow, export market oriented growth in aggregate demand; a large, expandable U.S. productive capacity at real prices approximating those of 1979-81--is subject to many uncertainties and irregularities. A faster, more robust recovery of foreign economic growth than we have projected could stimulate export demand for U.S. commodities beyond the levels we have indicated. Prolonged high real interest rates or a new cycle of rapid inflation in the prices of production inputs could reduce profitability in agriculture, cause a significant shake-out among financially vulnerable operators, and slow projected increases in productivity and productive capacity.

#### Policy Implications

With these caveats in mind, several important policy implications relevant to development of long-term policies for food and agriculture emerge.

#### Interdependence with Other National and Foreign Policies

Much of the economic destiny of U.S. agriculture lies beyond the farm gate and beyond the purview of agricultural committees to legislate. Agriculture is not and can never again be a closed sector of the economy. Domestic monetary and fiscal policies, international economic policies, and occasionally foreign policies will have more to do with underlying economic conditions in agriculture and rural America in the long run than will the traditional commodity price and income policies upon which the policy debate has for so long centered in agricultural circles and legislative committees. Narrowly drawn farm commodity programs or "quick fix" legislative solutions failing to recognize such interdependency are not only likely to prove illusory and costly, but in the long run potentially damaging to the development of U.S. agriculture. The challenge is to develop long-term policies which permit agriculture to function efficiently and adaptively within the realities of an open economy and which mitigate the excesses or inequities of the system. Agricultural interests might better direct relatively more of their energies to forming coalitions with other interest groups to shape macroeconomic and international policies than to further refining the incredibly complex, none-too-effective commodity policies of the present and the past.



### Constraints Imposed by Foreign Markets

The growing dependence of U.S. agriculture on foreign markets imposes an important constraint and discipline on long-term agricultural policy. It also exposes agriculture and consumers to the potential for increased instability. Much of the expansion in agriculture's productive capacity in past decades was stimulated by growth in export demand; much of the current excess capacity results from the decline in export demand since 1981. Our assessment suggests that much of the future growth opportunities for raw agricultural commodities rests squarely on restimulation of foreign demand and agriculture's ability to maintain an aggressive, competitive stance vis à vis these markets. Here too, only a part of the conditions necessary for recovery of U.S. agricultural export markets can be dealt with through agricultural legislation. The fundamentals to bring about economic recovery and resumption of growth in world trade reside in monetary and fiscal policies--our own and those of foreign countries--in resumption of public and private investment capital flows to the developing countries and in the operation of international monetary systems. One of the most effective and enduring forms of market promotion for U.S. agricultural products would be sustainable non-inflationary economic growth on a global basis.

But the part of trade development that is within the purview of agricultural legislative committees is very important. It is a fundamental choice that will need to be made soon if not in 1985--the choice between programs that keep U.S. farm products competitive in world markets and cushion the inherent instability in such markets, or inflexible programs that erode our competitive position and fail to deal with the instability problem until it becomes a crisis. An obvious element of the policy choice turns on commodity price programs--the level of price guarantees and their flexibility to adjust to changing conditions in world markets --and on food reserves policies. But the issue also turns on policies to ensure or enhance long-term productivity to maintain competitiveness in world markets and upon our abilities to bring about more flexible, open international trade arrangements. The basic choice is whether we are going to devise policies predicated implicitly upon the concept of a closed, protected agricultural economy or upon the realities of an open, trade-oriented economy.

### Broadened Scope of Agricultural Policy

Agricultural policy is no longer just farm policy. It must incorporate more fully the related dimensions of food and nutrition, natural resources and environmental goals. Consumer interests and their stake in long-run policies to

ensure dependable, plentiful, wholesome, and reasonably-priced food and fiber supplies are obvious. There are legitimate consumer concerns about the nutritional value of some of our highly processed and promoted foods and the use of health-hazardous chemicals in the food system.

To be sure, there are conflicts in producer and consumer interests in farm-directed policies even though the farm value now accounts for less than 40 percent of retail food expenditures. But there also are complementary factors in farm and consumer interests including public policies conducive to a viable, profitable, and progressive farm sector, policies which mitigate the effects of production instability, and farm policies which themselves do not add to instability and uncertainty.

Other important linkages needing attention are those between agriculture and its natural resource base and quality of the natural environment. Our assessment does not suggest that the availability of land and water resources will pose a significant constraint to expansion of national, aggregate production of food and fiber in the next decade or two. Nevertheless, the maintenance and protection of the quality of that resource base are of paramount importance to the long-term sustainability of agriculture.

Within our generally optimistic assessment of the adequacy of the resource base lurk difficult and important regional and subregional problems and potential major resource adjustments. Sheet and rill erosion exceed "T" values on some 113 million acres of cropland (27 percent of the total) with implications for crop productivity and off-site pollution. Cheap water policies have encouraged profligate use of water in parts of agriculture. Groundwater withdrawals in the United States have risen, on average, 3.8 percent per year since 1950; the groundwater table is reported to be declining an average of 6.6 feet per year under 15 million acres of land irrigated by groundwater in areas from the Rio Grande to Nebraska and in California and Arizona. Groundwater contamination in the form of salinity is a serious problem in parts of the irrigated West; pollution of the nation's streams and lakes in the form of dissolved oxygen, excessive phosphoric and nitrogenic nutrients, and suspended solids carrying bacteria and pesticides, in part from agriculture, occurs in many parts of the country.

Unfortunately, unfettered operation of markets does not yield socially optimum long-term results concerning natural resources and the environment. The Congress and the executive branch have demonstrated awareness of these problems in the targeting soil conservation payments and in discussion of

various "sodbuster" bills, in cross-compliance linkages to commodity and other farm programs, and in conservation-oriented land set-aside schemes. It is important that in formulating the next generation of policies, careful attention be given to harmonizing commodity price and other farm production-oriented policies with long-run natural resource and environmental goals and to establishing a policy framework and workable incentives to maintain or improve the quality and prudent husbandry of natural resources and the environment.

With respect to the availability of water, agriculture ultimately must be prepared to pay higher prices because of rising competition. Public policy issues are shifting from development of additional water supplies to those of managing the increasingly more valuable current supply. This reality may cause significant adjustments in some parts of the agricultural economy. Adjustments in federal water pricing policies to encourage more economically rational water uses need to be seriously examined.

The design of new legislation in 1985 provides an important opportunity to achieve a more comprehensive framework for addressing the interrelated issues of farm, food, nutrition, resource, and environmental policies and to achieve greater consistency among national goals concerning each.

#### Impact of Recent Change on Farm Commodity Programs

The structure and economic organization of agriculture have changed so radically in recent decades as to undermine the former premises and political sustainability of farm commodity programs. In 1982, about 12 percent of the 2.4 million farms accounted for nearly two-thirds of the gross income and nearly 95 percent of the net national income from farming. These 300,000 highly commercial, science-oriented farms with annual sales in excess of \$100,000 earned net family incomes from all sources ranging from \$31,000 to \$598,000 in 1982; their net worth ranged from \$866,000 to \$2.7 million per farm. This same group of farms receive a disproportionately large share of commodity deficiency payments and other benefits scaled to volume of production. A basic question is whether income transfers to this group of farms through commodity programs can any longer be justified.

At the other end of the spectrum are 1.7 million farms, many of them part-time or "hobby" farms, with annual sales of less than \$40,000 accounting for 71 percent of all farms by number, 16 percent of the gross income but only 5 percent of the net income from farming in 1982. For most of the families on such farms, income from farming is merely a supplement to off-farm earned income. Thus, the state of rural development and off-farm employment opportunities have

much more to do with the economic well-being of such families than farm commodity programs.

In the middle spectrum are some 390,000 farms (16 percent of all farms) with annual farm product sales ranging between \$40,000 and \$100,000, accounting for about 20 percent of gross income and 10 percent of net income from farming in 1982. This group of smaller, commercial family farms derives about one-third of family income from farming, on average. In 1982, family income of this group from all sources averaged \$16,200; their net worth per farm, about \$520,000. It is this group of farms--particularly the smaller, full-time operators--where the current financial squeeze is perhaps most severe. And, it is this group that appears to be most vulnerable to cyclical downturns in the farm economy and to long-run structural adjustments.

Agriculture in the 1980s is vastly different in structure and organization from the time when many of our current commodity programs were justified and implemented fifty years ago. Overall, farm commodity programs are of lesser significance as a means of influencing family income in rural America than they once were. The income position of many farm families is barely touched by commodity programs. But with increased concentration of production, some 12 percent of the largest farms with income and wealth well above average in the American economy now command a disproportionately large part of income transfers from commodity programs.

The development of legislation in 1985 affords an opportune time to re-examine goals and expectations of commodity programs, their public costs and distribution of benefits. Agriculture is an extremely heterogeneous industry. Programs which fail to recognize that heterogeneity and its consequences are likely to prove increasingly inadequate for all concerned--farmers, consumers, and taxpayers.

#### Concluding Remarks

In summary, the writing of new legislation in 1985 should be approached from a perspective which recognizes the interdependency of agriculture nationally and internationally. In that respect, domestic and international economic policy may have more to do with the recovery of agriculture and its long-term development than traditional farm policy.

I have suggested three major policy issues which should be addressed in 1985 legislation. The first turns on recognition and acceptance of the importance of export markets

to future growth in U.S. agriculture and the necessity of disciplining domestic commodity programs to maintain our competitiveness in those markets. The second has to do with developing legislation that will provide greater consistency among national goals related to agriculture, food, nutrition, natural resources and environmental quality. The third pertains to the very uneven distribution of income transfers within the farm sector from commodity price programs.

Is it possible to find a consensus on agricultural policy that contains basic safeguards for family farmers and yet is flexible enough to avoid the need for legislative change every few years? It will not be easy to find that consensus particularly with respect to commodity programs. Gardner and Tweeten have suggested eight goals around which consensus might be sought:<sup>3</sup>

- (1) Efficient allocation of resources and products;
- (2) competitive pricing in world markets;
- (3) reduced U.S. Treasury costs;
- (4) stability in food and fiber prices, but not to such a degree that price signals fail to induce needed resource and output adjustments;
- (5) simplicity and continuity of legislation to provide a predictable planning framework for producers and consumers, but flexibility to respond to shocks from year to year;
- (6) preservation of a competitive economic environment in agriculture by maintaining enough family farms to avoid undue concentration of economic power in a few large farms;
- (7) equitable distribution of program benefits so that transfers do not go from lower income taxpayers to higher income producers;
- (8) conservation (socially optimal) of natural resources so that agriculture is not only efficient but sustainable in the long run.

But even if these goals can be agreed upon, there is a lengthy menu of means by which they might be sought. There is, I believe, consensus that a price "safety net" should continue to be provided because of the inherent instability in agriculture. And there is general agreement that the safety net should be sufficiently low and flexible in both directions so as not to distort market signals or erode our competitiveness in world markets. There also is agreement among analysts that the Congress should not attempt to fix support prices by fiat as was done to some extent in 1981 legislation, but there is disagreement as to how the safety net should be indexed and the extent of discretionary authority to be granted to the secretary of agriculture. There is agreement on the need for food reserves but disagreement on desirable level, operating rules, and the extent to which multilateral reserve policies should be pursued. There is general

agreement on the need to more closely link commodity and natural resource conservation program objectives but not general consensus on how best to do so. There is disagreement on the extent to which income guarantees should be provided, who should receive them, and in what way--through a target price mechanism, through income insurance schemes, or through indirect income transfers indexed to some type of "means" test.

In conclusion, there are compelling reasons for gradual readjustment of food and agricultural policies to the realities of the 1980s and the long-run fundamentals of globally interdependent food and agricultural systems. The forthcoming debate on 1985 legislation is an opportune time to explore the options and begin the adjustment process.

## NOTES

1. The views expressed are solely those of the author and in no way constitute a statement of policy of Resources for the Future.
2. Farrell, Kenneth R., Fred H. Sanderson, Trant T. Vo, and Michael F. Brewer, Meeting Future Needs for United States Food, Fiber, and Forest Products, National Center for Food and Agricultural Policy, Resources for the Future, Washington, D.C., January, 1984.
3. Gardner, Bruce and Luter Tweeten, papers in Agriculture, Stability and Growth, Curry Foundation, Washington, D.C., February, 1984.