STAFF PAPER

ITS TIME (PAST TIME) FOR LAND GRANT UNIVERSITIES TO INTERNATIONALIZE THEIR RESEARCH AND EXTENSION AGRICULTURAL POLICY AGENDA

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Its Time (Past Time) for Land Grant Universities to Internationalize Their Research and Extension Agricultural Policy Agenda

by

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It's Time (Past Time) for Land Grant Universities to Internationalize Their Research and Extension Agricultural Policy Agenda

Research and extension programs at land-grant universities have made major contributions to agricultural policy of the United States over the past 50 years. But there is growing concern that these universities, with few exceptions, are losing credibility as a key source of research and extension information for designing national farm and food policies. Particularly there is a deficiency explaining linkages between macro-economic policies and the agricultural sector. They are losing this race because they have not fundamentally "internationalized" their total mission to take into account the now irrevocable interdependence of the United States agricultural sector in a world economy.

Objective evidence of the relative importance of contributions of research and extension programs to national agricultural policy over time is difficult to marshall. Still there appears to be some judgmental support for a hypothesis of a declining social relevance of a broad range of activities historically associated with land-grant universities.

For the purposes of this discussion, the central thesis is proposed that research and extension programs at land-grant universities are having a declining impact on formulation and implementation of agricultural policy in the United States. To further limit the scope, a major focus will be commodity policy. Some possible explanations are offered within a broader agenda discussed by Schuh (1984) and others.

These include:

(1) misplaced priorities in the research and extension agenda of land-grant universities,

(2) lack of a broad conceptual strategy for research and extension programs in agricultural commodity policy, and

(3) institutional lag of land-grant universities in redirecting their missions in a significant way towards problems arising from interdependence of world agricultural systems.

Misplaced Priorities

For several decades, research economists at land-grant universities have spent an inordinate amount of time studying topics such as the elegance of the so-called "competitive market", questions of U.S. agricultural resource allocation, and micro-economic issues of the firm, (Josling, 1981,). However, the principal roots of problems that plague U.S. farmers today are not centered in these topics but in macro-economic policy issues dealing with major societal concerns such as the national deficit, exchange rate policy, and the impact of worldwide trends in real prices of food and fiber on farm incomes and survival, (Kelley, 1984).

Evidence that a relevant educational gap exists for the national agricultural policy agenda includes the rapid increase in the number of groups seeking to establish themselves as basic sources of credible knowledge in this area. Many of these are "well-heeled" organizations, non land-grant-based, and tend to make use of only a small "elite" group of specialists from land-grant universities. I do not propose that

these organizations are not doing good work, but they have staked out some territories and differentiated their "product" from that of land-grant staffs. Some are obviously not totally "policy neutral" in the sense of a land-grant university. Let me name a few:

1. The Curry Foundation: A Washington, D.C. based organization that has recently organized an agricultural policy study called "Agriculture, Stability, and Growth: Toward a Cooperative Approach", (Abel, 1984).
2. The National Agricultural Forum: A coalition of interested farm organizations coordinated by the Agricultural Council of America Education Foundation. The Forum sponsored two major studies:
    a. Policy Options for Improving the Trade Performance of U.S. Agriculture, (Policy Options. 1984), and
    b. Alternatives for U.S. Food and Agriculture Policy, (Alternatives ---,1984).
3. Dialogue: An Agriculture Policy Project sponsored by Monsanto, (Dialogue---, 1984).
4. Council for Agricultural Science and Technology, (Tweeten, 1982).
5. The National Center for Food and Agricultural Policy, Resources for the Future, Washington, D.C.: The center's emphasis is on leadership development, communication, and policy analysis, (U.S. Agriculture---, 1984)
6. The American Enterprise Institute: A Washington based conservative "think tank".

7. The National Planning Association, Washington, D.C.: The Association issued a report, "State of Agriculture, 1984".

Offsetting this trend toward high concentration of resources with limited land-grant university input are projects such as the Center for Study of Domestic Agriculture Policy at the Department of Agricultural Economics of the University of Missouri and a similar center for the study of International Trade Issues located in the Department of Economics at Iowa State University. The latter two centers jointly coordinate their efforts, (Johnson, S.R., 1985).

I do not wish to imply that there is no other recent high quality agricultural policy research. The interested reader is referred to the excellent recent summary of other major scholarly work by Rausser and Foster, (Rausser, 1984). Much of the research noted by them is from land-grant university personnel. A recent cooperative effort of research and extension personnel in 17 land-grant institutions is a limited but hopeful example that these universities will continue to exercise a vital and significant educational role in the ag policy area. (Guither, 1984, Flinchbaugh, 1984, and Knutson, 1984). Still top administrators in land-grant universities and the profession of agricultural economics have some cause for concern about the trend noted above.

Developing a Conceptual Strategy

The role of research and extension programs at land-grant universities in agricultural policy is simply to provide citizens with

improved information for participation in group decision processes related to agricultural policy issues. There are at least two broad areas of relevant inquiry involved. The first concerns the dynamic nature of the decision process. We have limited rigorous research knowledge of how national agricultural policy decisions are made. There is considerable wisdom and even folklore among active practitioners of the "art". But as scientists and teachers, we are hard pressed if asked to explain to a group of interested local citizens the exact paths they might pursue and predicted consequences of each in affecting a proposed policy change. Some of the best work analyzing this problem is centered at Washington University in St. Louis, under the direction of former Secretary of Agriculture, Clifford Hardin, (1984).

The second broad conceptual area concerns specifically the basic analytical frame that is most relevant in "explaining" the fundamental economic nature of the farm problem, its causes, and parameters that are subject to change if a change is desired in the aggregate economic outcome.

What are the policy target variables to be achieved in such a frame of reference? What are the instrument variables driving the target variables of concern? Klein has given one of the most lucid statements on these issues (1981). Of equal importance is the question of which policy groups or coalitions can actually succeed in manipulating relevant instrument variables.[1]

If we start from the simple premise that the U.S. agricultural sector as well as the agricultural sectors of most other countries are highly interdependent, we are forced to consider U.S. agricultural

policy in a different analytical framework than was appropriate for the largely closed economy of the 1930s or even the late 1950s. A relatively simple model of trends and cycles in real world food prices is helpful for describing the economic reality with which U.S. agricultural policy must deal.

Two principal "empty economic boxes" ought to be our concern:

1. What is the most likely long-term trend scenario for real world food prices--what variables and systems drive these trend scenarios?
2. What are the most likely year-to-year or multi-year, short-run cycles about the long-term trend--what variables and systems drive these cycles?

The research agenda of the land-grant university system ought to be filling these empty economic boxes and our extension programs "extending" knowledge about them for at least two reasons:

1. To determine if interventions are possible by any sub-group of the overall system, to alter the outcomes and dynamic path of the system over time,[2] and
2. To determine the likely outcomes and paths of the system after various possible interventions.

Let's pursue implications of improved knowledge about both classes of events--trend and cycles--for agricultural policy information and see where this leads our research and extension agenda.

Long-Term Real Price Trends

While fraught with considerable uncertainties, there are analytical methods to address this type of question--i.e., what are the probabilities for the long-term trend of a real commodity price to increase, decrease, or remain relatively constant? (This problem has been outlined in some detail by Kelley, 1982 and Johnson, D.G. 1983).

To provide more precision to the argument, consider the long-term real price for U.S. wheat, which has been declining (Johnson, 1983). U.S. price trends are assumed as a reasonable proxy for "world wheat prices". This is the result of the drive of worldwide supply forces increasing at a more rapid rate than worldwide demand forces. Many analyses indicate that the continued increase in adoption of new non-human technology, the potential for substantial gains in human capital growth, and the decreasing income elasticity of demand for wheat with increased income will cause the decline in real world wheat prices to continue.[3]

There was considerable optimism in some circles during the late 1970's that real food prices in the aggregate were on the increase. The more conservative view today is that the trend in real world food prices is at least flat, if not decreasing. It should not take much creativity to be able to demonstrate the enormous relevance of the "correct conclusion" about this simple idea for the long-term future of individual and aggregate investments in agriculture and a host of other derived relationships. The practical conclusion for agricultural policy formulation is that for the foreseeable future, for most commodities traded worldwide, little likelihood exists that any nation or sub-group

of nations will develop agricultural policies to alter basic international price trends already underway.

If this is the case, aggregate information about the basic causal variables of the long-term trend in real prices of agricultural commodities becomes exogenous to the agricultural policy process of a given nation. The agricultural policy problem for an individual nation then is to deal with consequences of such exogenous drives. In the U.S., we have responded to such phenomena by increasing farm size in an attempt to maintain real incomes per farm family or worker with the well known exodus of labor out of agriculture. We have had 50 years of commodity programs in an attempt to alleviate part of the income and labor adjustments associated with this process.

One of the practical adjustments that the U.S. agricultural policy process needs to consider with respect to the long-term trend outcome is the design of "safety nets", if such are to be considered. Instead of using a percent of simple moving average of immediate past prices, perhaps a trend value or slope variable should be incorporated in the indexing instrument to ensure that "safety net price targets" are below market-clearing trend prices. Automatic indexing procedures could be incorporated in a manner suggested by Richard Just (1984). The most important notion is that no agricultural sector can hold its safety net prices above long-term market clearing prices without disastrous budget or market shares consequences. The trend outcome likely will not be changed substantially by the nature of short-term competition in world markets. It is equally important that the influence of trend slope be taken into account in design of any proposed short-term cycle

adjustments to be discussed in the next section.

I conclude that the need for improved knowledge about the real price trend scenarios should be high on our research agenda. Extension programs based on this concept also are urgently needed.

Short-Term Cycles

The second class of events of perhaps most common interest, particularly for the immediate problem of firm survival, includes the nature and causes of cycles or fluctuations about the long-term trend.

Conventional wisdom suggests that the principal causes of these year-to-year or short-term, multi-year cycles are the following:

1. random deviations in weather and other biological factors such as pests and diseases, etc.
2. short-term fluctuations in basic demand and supply parameters caused by such things as worldwide recession, etc.
3. exchange rate changes related to monetary policy and international capital flows, and
4. structural changes in an imperfect world-market environment, including barriers to trade.

There are obviously other variables but there tends to be considerable agreement that these are the main causes, (Tweeten, 1983 and Kelley, 1982). What is needed for the research agenda is more rigorous dynamic partitioning of the collective effect of these variables on real world food prices in order to predict a particular outcome at a particular point in the cycle. Recent studies by Abott (1984), and Shane and Stallings (1984) address the problem of excessive

debt and financial constraints to trade particularly for the developing nations. Dunmore and Longmire have developed promising methodology for partitioning major determinants of short run changes in U.S. agricultural exports. For the interested scholar, D. Gale Johnson has aptly addressed the weather and structural causes in several earlier analyses, (1975). Tweeten is pursuing work relevant to isolate the relative importance of basic shifts in conventional demand and supply variables and in explaining current excess capacity in the U.S. agriculture sector, (1983). Schuh is perhaps the father of the exchange rate school in U.S. agricultural economics circles, (1979). Credit must be extended to members of the International Trade Consortium for again reminding us that international agricultural markets, particularly grain, might well be imperfect, (McCalla, 1981, Schmitz, 1981).

Voters and policy makers need more information about the relative importance of each of these four major contributors to short term cycling of world food and fiber prices as they design new programs for U.S. agricultural policy.

Weather and Biological Factors

Since worldwide aggregate grain output seldom fluctuates more than ± 3 percent per year because of weather and biological factors, the effect on world food prices could be reasonably dampened through international trade, if man-made policy barriers to imports and exports were removed. However, many LDC's partially excluded from the benefits of a relatively free world trade process have turned to buffer stocks and other food security schemes, (Huddelston, 1977).

Since developing nations are clearly the biggest source for potential demand expansion for grains, our research agenda could well afford to direct more research toward a better understanding of the buffer stock and "trade adjustment" programs of LDC's related to their food security strategies, (Ryu, 1983). Improved information in this area could lead to perhaps a greater use of such stabilizing strategies by importers and could serve to enhance our understanding of variability of annual trade flows to these nations. The consequences for price stability effects in the U.S. are rather obvious.

In the U.S., we have public and private crop insurance schemes to offset weather and biological risks. It appears that there will be limited pressure to pursue additional new forms of legislation to alleviate instability from this source in the near future. In a recent survey, eighteen percent of Kansas farm operators thought federal crop insurance was a good buy, but more than 45 percent thought is was too expensive, (Flinchbaugh, 1984). Clearly, there is room for research in addressing the problem of insurance, if it is to be an effective tool to dampen production instability. Research and extension programs can be joined in such efforts.

Short-Term Fluctuation in Basic Demand and Supply Parameters in World Ag Sector Economies (Excluding Weather and Biological Variation)[4]

The basic methodology is reasonably well known for estimating major short-term determinants of annual changes in food supply and demand for the relevant sectors of the world food economy, (Tweeten, 1983). Stock and diversion programs have some potential dampening capacity to deal with effects of short-term fluctuations in U.S. output of food and feed

grains but limited capacity to deal with induced effects of worldwide variation in these variables. U.S. agricultural commodity programs do not have the capacity to deal with fundamental causes of these short-term cycling effects of the U.S. food sector and obviously not for agricultural sectors in the rest of the world.

There is a clear research need for more analyses in the Tweeten mode and the extension of such findings to policy makers. One of the major short-term instability forces, if not the major one, is the impact of the U.S. deficit on interest rates paid by farmers. This impact is most acute on those in highly leveraged capital positions. Income stabilizing programs have been advocated by some to offset some of the short-term instability arising from economic variables.[5] One of the most successful of these to date has been the western Canadian wheat stabilization scheme, (CBO, 1984). Other major research studies are also underway or have been completed in this area. However, to date there is little popular acceptance of such ideas among American farmers, (Guither, 1984).

Exchange Rate Effects

Movement from fixed to floating exchange rates with the decline of the Bretton-Woods Agreement in 1969 and the devaluation of the dollar in the early 1970's were major contributors to the rapid expansion of U.S. grain exports during the 1970's. The U.S. dollar had been "overvalued" prior to that time and served as an implicit tax on U.S. agricultural exports. Starting early in the 1980's, the U.S. dollar became very strong relative to other grain exporter currencies and U.S. agricultural

exports fell sharply. There is a strong school of conventional wisdom that argues that U.S. macro-policies related principally to the U.S. deficit resulted in relatively high U.S. interest rates attracting dollar-denominated foreign investments, and thus driving up the value of the dollar.[6]

The principal policy directions that have been suggested for dampening the instability effect of exchange rates on U.S. agriculture include:

a. development of a new international banking institution to target exchange variations within specified ranges for major reserve currencies such as the dollar, (Schuh, 1980) and

b. adoption of macro-economic policies within nations (such as the U.S.) to reduce the level of deficits, etc.

Some estimates of the quantitative impact of the high value of the dollar on U.S. export sales are available. Continued research is needed to improve predictability of exchange rate impacts on U.S. agricultural exports as well as its opposite impact on imports. Exchange rate fluctuations directly impact trade sectors involved in exports and imports today. In the era of fixed exchange rates, this effect was diffused throughout the economy, (Longmore, 1983).

The practical conclusion for agricultural policy analysis is that conventional U.S. agricultural commodity policies will have almost zero impact on dampening this source of income stability for U.S. agriculture. The extension agenda on this matter is relatively clear.

Structural Changes in Imperfect World Grain Markets

Evidence of price shock effects in international grain markets because of state trading or import strategies of trade consortiums is rather substantial. There is a considerable body of research dealing with reaction or counter strategies to such tactics that might be employed by a single nation or a collection of exporting nations.

While the research to date in this area is off to a good start, it is only the "tip of the iceberg" of what is needed. We are dealing with research in the rather complicated area of the theory of imperfect markets joined with the interaction effects of the role of governments. But research progress cannot proceed on pure deduction alone. There is an enormous need to get on with empirical research of propositions concerning the real nature of the commodity "price discovery" process in the international grain markets of today. This also will require a greatly improved knowledge of institutions impacting price discovery mechanisms. U.S. agricultural economists long ago learned of enormous research difficulties when they became interested in imperfect U.S. domestic food and fiber markets. The problem is compounded when it is cast in the international setting. This kind of research is vastly more expensive than the kind U.S. research administrators have dealt with in the past.

Clearly, research administrators need to make a choice. Are research programs at land-grant universities to be credible in this area and will they lead the way? Alternatively are we going to educate our students and farmers and ranchers about these international markets by bringing in visiting lecturers from Cargill, Bunge, and international

banks, etc.?

A relatively simple matrix can help to sort out a relevant research and extension education agenda for better understanding the process of price discovery in imperfect international grain markets.[7] International grain and oilseed markets may be characterized on the import side as imperfect with strong active government intervention. Much of the export side is dominated by those same characteristics.

If this is the case, U.S. farm policy makers have to be concerned whether: (a) they will seek to alter the competitive nature of the market and the role of governments in any significant way, (b) the U.S. wants to play "hard ball" in this league, or (c) the U. S. merely wishes only to react with price- dampening schemes to outcomes of the principal actors in the market. If a clear policy decision can be achieved about where the U.S. wants to go, then certain market strategies follow constrained by (a) U.S. budget considerations and (b) acceptance by U.S. farmers and the voting public.

I find it baffling to pursue the "Alice in Wonderland" scenario of proposing a move toward "market orientation" with the implicit view that this means that international markets are "highly competitive in a perfect competition mode" and the role of governments is passive. It is a contradiction to say at the same time that we must compete by the use of export subsidies to maintain or attain specified market shares. For example, if a target of U.S. agricultural policy is to maintain 55 percent of the world wheat market, then certain "imperfect market" strategies must be in the bag of policy instruments to achieve that end. The analytical concepts of defining the competitive nature of the market

and the role of government can be visualized by a simple 2x2 matrix relating the role of government as either passive or active to the nature of the market as either perfect or imperfect, (McCalla, 1981).

McCalla and others have argued that much of our research in agricultural economics has assumed perfect competition models as the primary explanatory methodology, with the role of governments considered as having a passive effect on economic outcomes, (MeCalla, 1981, Josling,1981). This approach tends to strongly obscure what appears to be a more realistic state of affairs for international grain markets, which may be best described as active government participation in an imperfect market.

We can apply the analytical structure of the simple matrix to a partial list of short-term market strategies of U.S. and foreign government policies currently in use to deduce, in general, which "cell" of our matrix more typically represents the present state of affairs in international grain markets, Table 1.

Table 1. Matrix of Role of Government and the Nature of Competition in International Grain Markets, 1986.

ROLE OF GOVERNMENT	NATURE OF COMPETITION	
	PERFECT	IMPERFECT
PASSIVE	a	b
ACTIVE	c	d Fixed Loan Rates Export Subsidies Acreage Diversions Deficiency Payments Blended Credit Expanded Export Credits Stabilization Stocks Crop Insurance Market Discrimination Commodity Agreements Variable Levies Import Tariffs Insulated Domestic Producer and Consumer Prices

Our list is not intended to be exhaustive. Cells a, b, and c are not filled in, since they are not essential to the argument. Some, however, would include futures and options market strategies in cell a. If the classification of intervention items is reasonably correct, there is strong evidence of high concentration of activities suggesting characterization of international grain markets as imperfect and associated with strong interaction and role effects of governments. It does appear that U.S. national and much private policy is pursuing targets "as if" these markets were characterized as operating in a perfect competition mode with a passive role for governments. What is most relevant is that we seek a research and extension consensus on the

general nature of the competitive matrix and design our research and extension agenda to obtain the fundamental facts of the situation for delivery to the relevant clientele. Then such audiences through public or private policies can implement marketing programs and/or other policy interventions appropriate to the underlying structural and governmental roles as specified in these markets.

Institutional Lag in Redirecting Research and Extension Programs in Agricultural Policy

Research and extension programs applied to problems of the U.S. agricultural sector have historically lagged behind physical and biological sciences in development and funding. Typically today, the latter sciences, in part because of political support from large and active production oriented organizations, still receive larger budgets in land-grant universities. However, research and extension programs in agricultural economics directed toward issues of the U.S. agricultural sector moved ahead in the post-World War II years. Research and extension programs on marketing oriented issues close to the producer end of the marketing chain proceeded more rapidly, in part because of the indigenous knowledge of research and extension workers. These personnel grew up on farms. They understood the operations of local marketing institutions and market processes. Hence, development of research and extension programs was enhanced by this prior knowledge base. As research and extension programs focused on problems nearer the consumer in the marketing chain, the research and extension agenda became more difficult and complex. Witness the research data problem in domestic market structure studies, etc.

However, with expansion of export markets for grains in the 1970s, research and extension personnel at land-grant universities face a totally new economic environment in which to implement their mission. Since grain exports account for a very large share of cash receipts from farming, it is elementary that the land-grant university mission is incomplete if a vacuum of knowledge exists for a now totally new and different market phenomenon facing U.S. producers, market agencies, or consumers.[8] The land-grant university response to this new state of the arts in world agricultural markets has been slow and reasonably predictable. Programs have been developed to enhance foreign buyers' knowledge of technical aspects of grain marketing processes including U.S. grading standards, quality problems, storage and transport concerns, etc. These programs have been in a technical mode, requiring some but not major adjustments in technical educational programs and delivery systems of U.S. scientists.

What has not been recognized in any significant way, however, is that major new investments in human and nonhuman capital will be required if we are to achieve "parity" with traditional activities in understanding the economic processes related to the new phenomenon of international grain markets. Research on problems of predicting long-term and short-term price discovery relationships outlined in this paper cannot proceed effectively unless researchers have on-site research capability in international markets. This will require a different funding and research management process than for domestic research. Joint research and teaching appointments in this area, for example, will become more nearly like joint teaching and extension

appointments for U.S. problems. A substantial block of concentrated time will be needed for the researcher to be involved in overseas market research.

Similarly, extension staff will need the opportunity to study abroad to gain firsthand knowledge of these operations, if they are to be credible in bringing information about these processes to U.S. producers, consumers, and other clientel. In short, there is the need to combine the scientific expertise of the research or extension academician with much of the business and institutional knowledge of the top executives of the major grain exporters and governments both here and abroad. This dialogue is imperative if we are to develop reputable research and extension programs dealing with the role of international markets in our national food policy agenda.

This new agenda will require a recognition on the part of land-grant university administrators that their staffs no longer have indigenous knowledge about the new export market processes in the same fashion that they have knowledge that so ably enhanced past research and extension programs on domestic agricultural marketing issues. There will also be potential leakage problems as land-grant personnel gaining expertise are siphoned off to industry. That factor must be built in the overall land-grant strategy, if we are to institutionalize capacity in this area. Otherwise, we risk the enormous danger of admitting that we have a major long-term gap in our research and extension policy agenda at land-grant universities.

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Footnotes

1. The role of government is included in the matrix set of relevant target and instrumental variables.
2. I assume that all of sub-groups or some of the sub-groups acting in concert could, if they chose to do so, alter the basic economic outcomes of the aggregate.
3. It would be a great contribution to the education of our students if whenever we exhibit a display extolling the virtues of increased yields of wheat as a result of research (which we should), equal time and space were given to a chart on the most likely trend in the world real price of wheat (with appropriate explanations).
4. Weather and biological effects are excluded here by partitioning out their effects.
5. Obviously some of the income instability addressed in the Canadian wheat stabilizing scheme is due to biological and weather sources.
6. The flight to the U.S. for more secure investments is also a major factor.
7. I start from the proposition that agricultural policy agenda of the present and near future must be split into at least two parts:
   a. the problem of income supplements and firm survival for a large group, and
   b. the problem of pricing--principally grains and oilseeds in international markets for a very large group.

   If we agree that problems of firm survival caused by low farm income have their solutions in either special income supplement programs or in the macro-policy agenda outside of agriculture, we

can turn to the pricing problem for grains and oilseeds. Our focus is on pricing in the export market. If we agree with this approach, we must come to grips with a specification of the fundamental competitive nature of the export market and the role of governments in that activity. There are obviously other agricultural and food policy issues such as nutrition, soil conservation, food stamps, etc., but these issues will not carry the day in the current debate.

8. Included also are the interaction effects of U.S. market strategies and policies on similar groups in importing nations and their interdependence with U.S. export processes.