AGRIBUSINESS IN A GLOBAL ECONOMY: CHALLENGES FOR AN EVOLVING PROFESSION

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In a revised definition of the Davis-Goldberg concept of agribusiness, Sonka and Hudson suggest that the food and agribusiness sector might be thought of as a sequence of interrelated subsectors made up of: (1) genetics and seedstock firms, (2) input suppliers, (3) agricultural producers, (4) merchandisers or first handlers, (5) processors, (6) retailers, and (7) consumers. In applying this ubiquitous definition to global data, Goldberg (1991a) estimates that the food and agribusiness system is the largest economic sector in the world economy representing 50 percent of the global labor force, 50 percent of global assets, and 50 percent of global consumer expenditures. Even in the advanced economies, the agribusiness sector generates significant economic activity. Schulter, Lee, and Edmondson estimate that by the mid-1980s the U.S. food and fiber system was generating over $650 billion in GNP and employed 21 million workers accounting for approximately 18 percent of U.S. GNP and employing 18.5 percent of the available civilian workforce. Utilizing another illustrative approach in defining the breadth and pervasiveness of the food and agribusiness sector, Goldberg (1991b) cites as examples that agribusiness is now: (1) a separate subdivision of agricultural economics, (2) a separate subdivision of the American Marketing Association, (3) a separate division of the American Accounting Society, (4) a separate sector of the World Bank, and (5) a separate division of major commercial banks and insurance companies. He goes on to state that "anything that big and that amorphous, by definition, cannot have only one discipline as its underpinning" (Goldberg, 1991a, p. 67).

OBJECTIVE

The objective of this presentation is to examine briefly the interface between this amorphous field called agribusiness and the discipline or subdiscipline of agricultural economics. My remarks will address two issues related to this interface: (1) Why are a number of agricultural economists allocating an increasing amount of resources to this field of agribusiness? (2) Do agricultural economists have the aptitude, wherewithal, and incentives to contribute to the understanding of, and problem solving challenges faced by, the "off-farm" agricultural firm? The following two examples are illustrative of the first issue: (a) the recent founding of the professional organization, the International Agribusiness Management Association (IAMA) (Goldberg 1991b, Webster), and (b) the recent founding of a number of professional publications dedicated to the output of agribusiness researchers, including the *Journal of Agribusiness* (1983), *Agribusiness: An International Journal* (1985), *Journal of International Food and Agribusiness Marketing* (1989), and the *Journal of Food Products Marketing* (1991).

Why Agricultural Economists Study Agribusiness

Documentation of debate concerning the role and direction of agricultural economists has existed since Taylor reported the conflicts between farm management, rural economics, and agronomy in the early 1920s. Almost every presidential address of the American Farm Economics Association (AFEA) and its successor, the American Agricultural Economics Association(AAEA), in some form or another has addressed the general question of "What do agricultural economists do?" or "What should agricultural economists do?" Some have advocated "post- or pre-farm gate" investigation and activity—others have been less enthusiastic.

My approach will take the form of limited empiricism—recent observations of the rank and file agricultural economist as she/he struggles with the question of "Should I or shouldn't I" study the "off-farm agricultural market or firm?" and offerings from our leadership. These observations are described as "subtle forces" acting as incentives or disincentives to the pursuit of teaching, research, and/or outreach activities in the field of agribusiness.

Observation One: Change in Value Added by the Production Level

The percentage of the value added to the U.S. food and fiber sector by production agriculture has been

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decreasing since the turn of the century. Goldberg estimates that in 1910 the production level (farming) added 54 percent of the total value of the U.S. food and fiber system. By 1947 that percentage had fallen to 26 percent, by 1954 to 17 percent, and by 1990 to 8 percent. Smith, using an alternative approach, estimates that from 1910 to 1990 the share of value contributed by the farming sector to the U.S. food sector decreased from 21 percent to 5 percent while the input sector increased from 13 percent to 30 percent during the same period. Goldberg further suggests that this same phenomenon is happening at the global level. By the year 2000 Goldberg estimates that 15 percent of the value added to the global food and fiber sector will be generated by the farming sector—down from 32 percent in 1950. As these trends are analyzed by agricultural economists, it becomes increasingly clear that the decline in the relative size of the production sector limits professional opportunities for those interested in farm management and decision making.

Crowder and Hoffman phrase it differently, but no less directly.

> It should, therefore, be no surprise that the demand for farm level commodity analysis declines as the value-added food sector grows in importance relative to production agriculture. This does not necessarily suggest a decline in demand for applied economists but only a decline in demand for agricultural economists who choose to focus on production agriculture (p. 1192).

Observation Two: A Change in the Supply of Students

Adding value to students by developing marketable skills and knowledge has long been one of the major objectives of the agricultural economist. A brief review of recent trends encourages us to re-examine our current product mix.

In the late 1970s and early 1980s, more than 150,000 students matriculated into agricultural sciences (FAEIS). Ten years ago, in the fall of 1983, 138,762 doctoral, masters, baccalaureate, and two-year students enrolled in the approximately 130 AASCARR and NASULGC universities and colleges. Baccalaureate enrollment accounted for 109,000 of the total. Fall enrollments reached their nadir in 1987 when 110,000 students registered, approximately 84,100 for the baccalaureate. Since 1987, total enrollments in the agricultural sciences have increased to 118,000 with 92,000 in the B.S. program. Numbers for agricultural economics follow the same general trends. Perhaps as interesting are the trends in graduate degree enrollees in agricultural sciences. Ten years ago the fall enrollment of Ph.D. degree students was approximately 9,000 while the number of Masters degree students was 60 percent larger at 15,000. In 1991, Ph.D. fall enrollments had slowly but consistently increased to 10,000 students, while enrollments for Masters degree students had precipitously fallen to 10,900—a dramatic but steady 10-year decline.

In addition to the decrease in the number of students opting to study agricultural sciences, the undergraduate program is experiencing the passing of the "captive" stream of "exodus-from-agriculture" rural oriented and agriculturally knowledgeable student (Manderscheid, Polopolus, Adrian). The replacement is a more heterogeneous group of candidates whom Padberg might suggest have less "cultural membrane" with current faculty and practices. Additionally, this less homogeneous group questions the significance and reluctance of our traditional production economics — price analysis scientific approach to an increasingly hierarchical, vertically coordinated, non-commodity set of problems. These relatively abrupt demographic changes leave us with an unfamiliar and uncomfortable challenge of developing new programs, new approaches, and new classes that have appeal to a less rural-based agriculture prospect. According to Beattie, we have little choice because "academic agricultural economics is surely an undergraduate-program-dependent profession" (p. 1329). This need to become attractive and more "competitive" in the undergraduate program (particularly the agribusiness curriculum) in an increasingly demanding environment is testing and will test even the more forward thinking in the profession.

Observation Three: Increased Economic Interdependency Within the Food Chain

A third set of forces acting as an incentive for agricultural economists to explore the field of agribusiness is the realization of the increased economic and legal interdependence brought about by the "industrialization of agriculture." Even though Urban recently repopularized the term, food chain economists such as Shaffer, Marion, and the NC-117 project have for years been documenting its evolution and forecasting its further advancement.

When prices, quality, and quantity were coordinated through the open production market system, traditional production economics and price analysis were powerful tools in helping to manage the resultant risks. But as the shortcomings of this system became increasingly apparent and expensive for market participants, forms of more sophisticated vertical coordination have emerged. Multiple pool-

ing, contingency pricing, production management contracting, and various forms of vertical integration have increased the complexity of analyzing transactions in the food chain and have increased the degree of interdependence among food level participants. This has forced the production level economist to become more familiar with down- and upstream participants in the food chain. Meanwhile, it has created increased concern among price analysts as fewer publicly observed price transactions are available. Evolving from this more complex environment is the vertical-organization-oriented agricultural economist who finds her/himself comfortable in a multi-disciplinary economic-legal-organizational theory problem set.

Observation Four: The Call to Re-examine Our Product Line

As succinctly stated by Crowder and Huffman, "A gap exists between the products supplied by universities and demanded by industry. The profession has pressed out the frontier of agricultural economics as a science beyond application needs" (p. 1194). Crowder and Huffman conclude that the existence of this gap is more of a problem for the profession than it is for industry. But asset fixity not only applies to physical resources but to human resources as well, and therefore change and re-examinations move slowly. Leaders of the profession have often called for an improvement or realignment of our product line but perhaps none so directly as Padberg in his presidential address when he stated "Unless we can find a more useful product or service, our profession will experience a major decline" (p. 884).

Observation Five: Funding Uncertainty

As the United States attempts to "downsize its living standards" due to past excesses and unpaid bills, public institutions are coming under greater budgetary scrutiny. This includes the Land Grant University and its traditionally important College of Agriculture and its traditionally important departments that usually include the Department of Agricultural Economics. Accompanying any internal and/or external evaluation comes anxiety—anxiety especially about the future. This anxiety is enhanced as questions about the image of agriculture, whether agriculture is the problem, agriculture's accountability, the future of Land Grants, the disappearance of public support, and excess capacity in agricultural colleges are publicized (Batie; Paarlberg; Castle and Hildreth). My observation is that risk-averse human behavior seeks security particularly during these times. Consequently, in the search for a perceived growth product, we find a new subset of pro-agribusiness advocates.

Observation Six: Departmental Survival

Given the uncertainty of future funding, the questioning of our product mix, the decrease in supply of our critical raw material, a decrease in the relative economic importance of the production level in the food chain, and an increase in intellectual opportunities, it is relatively easy to agree with Sonka and Hudson that our sixth observation regarding increasing academic interest in agribusiness is for "departmental survival" reasons (p. 308). Agribusiness might be considered a "savior" from two points of view:

(1) First is the obvious new product-new niche viewpoint. The program is developed to interest job oriented-security sensitive potential parents and students. It might be perceived as a big numbers program. Keen (as quoted by Adrian) states this viewpoint perhaps more clearly by noting "...only those universities who are willing to respond to the needs of the market are likely to continue to be successful. Others, the nonresponsive ones, will continue to become weaker and will likely not survive the tight budget/fiercely competitive era of the future."

(2) But let's think about agribusiness as a different type of departmental savior. The topic of agribusiness might be thought of as having catalytic value in forcing Departments of Agricultural Economics into a serious strategic planning process. A well defined agribusiness program would demand enough resources that a majority of the faculty would have to give future direction and resource demands critical evaluation—not necessarily the case for most minor thrusts within departments, which are usually the result of entrepreneurial initiatives by departmental subsets promising outside funding. If departments were forced into examinations of future opportunities and threats, and involved themselves in competitive and contingent direction analysis, a considerable amount of the current "drifting" would disappear.

Do Agricultural Economists Have the Aptitude, Initiative, Wherewithal, and Incentives?

In attempting to address this question, it is essential that we first demystify the term "agribusiness." Sonka and Hudson help clarify the agricultural economists' uncertainty about professional activities under the amorphous umbrella of agribusiness by separating the topic into two areas: (1) agribusiness, and (2) agribusiness management. Simply stated

they suggest that the study of agribusiness focuses on the performance of institutions within the food chain whereas the study of agribusiness management concentrates on the "decisions and actions" of managers within the food chain institution. Shaffer, in exploring the agribusiness side of the definition, defines three types of information that research can produce to improve the performance of agribusiness: (1) information concerning the relationship of market rules to performance, (2) information and projections concerning the economic environment external to the firm, and (3) information to improve internal firm management. Agricultural economists, particularly the marketing specialists, have been successful and comfortable in their research and teaching of this side of the issue. Future demand for this subset of the profession looks encouraging. As we move toward a more vertically coordinated food chain, the new institutional economics offers strong theoretical and empirical tools to aid our understanding of agribusiness. Its concentration on information, the role of information in imperfectly competitive models, strategic behavior, transaction costs, and contracts, offer much to those who want to understand and manage in a coordinated food exchange system.

It is on the other side—that of agribusiness management—that agricultural economists are less comfortable and less experienced. The need to combine research and teaching efforts with those of decision scientists, production economists who deal with uncertainty and decision making, organizational behaviorists, psychologists, and management specialists will require a broadening of our horizons.

But do we as individuals or as a subset of the profession have the aptitude, the initiative, the wherewithal, and the incentives to make a positive contribution to this field? To start with, we might peruse Breimyer's "Agricultural Economics: A Transcendental Allegory" to remind ourselves of similar challenges and dilemmas expressed in combative debates about disciplinary differences among our founding agronomist, rural economist, and farm manager forefathers.

Aptitude: "The appropriate fitness to learn or understand." Who might be more capable, more experienced in understanding and solving the complexities of vertical coordination of the food chain than a profession that has contributed so much to the efficiency of markets constrained by asymmetric information, or arbitrage pricing, or forward contracting, or price discovery, or price dynamics? Who might be more knowledgeable in understanding the implication of risks generated by the biological production process or government instruction? We only have to apply a slightly different perspective to our traditional production-level orientation to incorporate the food chain participant.

Initiative: For a profession founded by creative and courageous professionals such as Taylor, Carver, Spillman, Warren, Tolley, and many more, it would be embarrassing if there were not at least some spirits remaining, who have the ability to think and act without being urged. Those who founded the IAMA and the aforementioned journals have done so with little encouragement or blessing. Whether or not they succeed, they have demonstrated that there is still an element of initiative within the profession.

Wherewithal: Usually wherewithal is thought of in monetary terms, but perhaps in the early stages of entrepreneurial development, human energy is more important. In the last two years, 12 issues of *Agribusiness: An International Journal* contained 92 articles and 203 authors, of whom 171 were identifiable as agricultural economists or agricultural economics graduate students. Sixty-five to 70 percent of the articles were agribusiness in nature as defined above, and 30 to 35 percent were agribusiness management oriented. Subscriptions to the journal from the end of 1990 to the end of 1991 had increased from 450 to over 700. If interest and energy are wherewithal, the agribusiness subset has some initial equity.

Incentives: The advances in defining and institutionalizing agribusiness made during the 1970s and 1980s by leaders such as French, Goldberg, Woolverton, Schneider, Sonka, Litzenberg, Cramer, Gorman, Westgren, and Baker were energized by the individuals' pleasure in fulfilling student needs, transgressing norms, and farsightedness. Many disincentives have constrained a more rapid development of well-defined agribusiness programs. Perhaps the most influential disincentive has been a comfort level with the status quo. To clear the current hurdles, it will take more than the energy of a small group of organizers—it will take incentives developed and approved by public administrators, industry participants, and leaders in the academic world.

CONCLUDING REMARKS

For those of us in the agricultural economics profession who find ourselves being pushed or pulled toward the exploration of this imprecisely entitled area of agribusiness, it might be helpful to briefly present the following points for consideration.

1. We might want to exercise the cautions of most "new product" managers: (a) constantly seek better information about the options, (b) remember that risk aversion and innovativeness are not highly correlated, (c) always keep the supporting venture capitalist informed and most

importantly, (d) attempt to understand customer needs so that they can be consistently and adequately met.

2. We should never underemphasize the importance of quality—nor should we fall for the argument often made by eloquent administrators that we should trade off quantity for quality. It is critical to remember that for this set of new products we no longer have a captive audience. We must maintain the standards of excellence set by the profession in previous initiatives and expand our standards to encompass new ventures.
3. We must systematically and aggressively address the self-imposed limitations that have reduced our profession's ability to tackle forward looking problems and to adopt institutional innovations. The following is a subset of self-imposed limitations identified by Just and Rausser. These are particularly important limitations in the study of agribusiness: (a) insistence on historical data analysis and subsequent falsification testing, (b) imposition of a false sense of objectivity, (c) emphasis on linear logic, and (d) the presumption that economic understanding is a convergent process.
4. We must not only *specialize*, but once specialized, we must *trade*. We must experience other disciplines' discoveries. According to McCloskey, trade in the intellectuals' life is the use of other peoples' work for one's own work. He further writes "Considering that other scholars read different books and lead different lives, it would be remarkable, a violation of economic principles, if nothing could be learned from trading with them" (p.1129). If we are to contribute to the understanding of this agribusiness field, we must supplement our expertise with that of others. We must expand our horizons, as Boulding said in noting that Darwin, the naturalist, "got his idea of natural selection when he was reading Malthus" (p. 788), the clergyman, historian, and political economist.

REFERENCES

Adrian, John. "Undergraduate Education in Departments of Agricultural Economics in the South: Status, Challenges, and Opportunities." *So. J. of Agr. Econ.*, Volume 22.1 (1990): 1-10.

Batie, Sandra. "Agriculture as the Problem: New Agendas and New Opportunities." *So. J. Agr. Econ.* 20(1) 1988: 1-11.

Beattie, Bruce R. "Some Almost-Ideal Remedies for Healing Land Grant Universities." *Am. J. Agr. Econ.*, 73.5, (1991):1307-1321.

Bonnen, James T. "On the Role of Data and Measurement in Agricultural Economics Research." *J. Agr. Econ. Res.*,71.4 (1989): 2-8.

Boulding, Kenneth E. "Agricultural Economics in an Evolutionary Perspective." *Am. J. of Agr. Econ.*, 63.5 (1981):788-795.

Briemyer, Harold. "Agricultural Economics: A Transcendental Allegory." In *Essays in Honor of Karl A. Fox*, edited by Kaul and Segupta, Elsevier Science Publishers B.V., 1991.

Castle, Emery N. and R.J. Hildreth. "An Overview: Agricultural Economics at a Crossroads." *Agriculture and Rural Areas Approaching the Twenty-First Century*, R.J. Hildreth et al., eds. Iowa State University Press, 1988.

Crowder, Richard T. and George H. Hoffman. "Ideal Academic Products for Industry: Research and Graduates." *Am. Jo. Agr. Econ.*, 71(1989): 1191-1194.

Davis, J.H. and R. Goldberg. *A Concept of Agribusiness*, Division of Research, Graduate School of Business Administration, Harvard University, Cambridge, Massachusetts, 1957.

F.A.E.I.S. *Fall 1991 Enrollment in Agriculture and Natural Resources—A Combined Report for AASCARR and NASULGC*, February 1992.

Goldberg, Ray A. "The Global Food System — The Role of Cooperatives." Paper presented at the Fourth International Symposium of Cooperative Managers, Carmel, California, April 1991a.

Goldberg, Ray A. "Why the International Agribusiness Management Association?" *Global Agribusiness for the 90s.* Proceedings of the Inaugural Symposium of the International Agribusiness Management Association, Boston, Massachusetts, March 1991b.

Hambley, Diane I. and Raymond A. Marquardt. "Status of U.S. Agribusiness Masters Programs." *Agribusiness, An International Journal*, 6.2 (1990): 153-162.

Hardin, Lowell S. "Potential Growth Areas in Agricultural Economics." *J. Farm Econ.*, 45.5 (1963): 941.

Johnston, Warren E. "Structural Change and the Recognition of Diversity." *Am. J. Agr. Econ.*, 72.5 (1990): 1109-1123.

Just, Richard E. and Gordon C. Rausser. "An Assessment of the Agricultural Economics Profession." *Am. J. Agr. Econ.*, 71.5 (1989): 1177-190.

Manderscheid, Lester V. "Undergraduate Educational Opportunities in the Face of Declining Enrollments." *Am. J. Agr. Econ.*, 70.5 (1988): 985-993.

Marion, Bruce W., and the NC-117 Committee. *The Organization and Performance of the U.S. Food System.* Lexington, Massachusetts: Lexington Books, 1986.

McCloskey, Donald N. "Agon and Ag Ec: Styles of Persuasion in Agricultural Economics." *Am. J. Agr. Econ.*, 72.5 (1990): 1124-1130.

Paarlberg, Robert. "The Political Economy of American Agricultural Policy: Three Approaches." *Am. J. Agr. Econ.*, 71.5 (1989): 1157-1164.

Padberg, Daniel I. "Agricultural Economics: Finding Our Future." *Am. J. Agr. Econ.*, 69.5 (1987): 883-889.

Polopolus, Leo. "Agricultural Economics Beyond the Farm Gate." *Am. J. Agr. Econ.*, 64.5 (1982): 803-810.

Reed, Michael R. and Mary A. Marchant. "The Globalization of the U.S. Food Processing Sector." Paper presented at the Conference on the Globalization of Agricultural and Food Order, Columbia, Missouri, June 1991.

Schulter, Gerald, C. Lee, and W. Edmondson. "Income and Employment Generation in the Food and Fiber System." *Agribusiness, An International Journal*, 2.2 (1986): 143-158.

Smith, Stew. "Farming—Its Declining in the U.S." *Choices*, First Quarter, 1992, p. 8-10..

Sonka, Steven T. and Michael A. Hudson. "Why Agribusiness Anyway?" *Agribusiness, An International Journal*, 5.4 (1989): 305-314.

Taylor, H.C. "The Development of the American Farm Economic Association." *J. Farm Econ.*, 4.2:(1922): 92-100.

Urban, Thomas N. "Agricultural Industrialization: It's Inevitable." *Choices*, Fourth Quarter, 1991, pp. 4-6.

Webster, Anthony A. "Why the International Agribusiness Management Association?" *Global Agribusiness for the 90s.* Proceedings of the Inaugural Symposium of the International Agribusiness Management Association, Boston, Massachusetts, March 1991.