The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

PROFESSIONAL DIVERSITY IN AGRICULTURAL ECONOMICS: SALVATION OR SUICIDE?

Lawrence W. Libby

INTRODUCTION

The theme of my address is *diversity* in the profession of agricultural economics. I address diversity as a response, a strategy, not as an end in itself but as a conscious approach by ag economists in land grant universities seeking a useful role in the future.

I chose this theme because I am genuinely concerned about our future in the 1862 and 1890 land grants. I acknowledge up front that not all ag economists work in land grant universities but all have a stake in them as our primary reservoir of human capital. Most practicing ag economists have roots in a land grant university and depend on their products for "new blood" in business or government. My interest in diversity has been influenced by the writings of several prominent ag economists, reviewed briefly below, by recent conversations with Jim Hildreth, John Holt, and Jim Bonnen regarding the future of the land grants and by personal observations of the painful manifestations of tensions within departments in the South and elsewhere as faculty try to position themselves for an uncertain future.

There are two basic approaches to dealing with uncertainty in our profession. We can "circle the wagons," protect what we know best, maintain professional distance, avoid people and ideas that could divert attention from familiar definitions of relevant problems, clientele, and professional excellence. *Or* we may go on the offensive, seek to anticipate problems and clients that will claim our attention, broaden ourselves as individuals and as land grant departments to be able to do something for somebody in the future. Both approaches are nicely accommodated in economic theory; each has its impassioned followers. Differences between them and the personal or professional values underlying them have deeply divided strong ag econ departments in all parts of the country. It is important for all of us that we talk about these differences, even argue occasionally, but at least understand each other to avoid wasting time and energy.

My basic thesis is that we *do* have choices in dealing with the uncertain future of land grant departments of ag economics. We have control of our enterprise, our reward system, and our rules of membership. Deliberate steps taken to expand or further focus who we are, what we do, and for whom we do it will affect our long term performance.

Others have addressed professional diversity; I have benefitted from their analyses. Just and Rausser found in their survey of nearly 1000 ag economists a tension for expanding the professional product, to become more prospective and useful in understanding current or emerging economic problems. Their results "...support the view that the profession has become too technique oriented, too solution rich and too risk averse in analyzing possible futures" (p. 1189). They conclude that preoccupation with *ex post* objectivity in pursuit of an illusive professional reward system underuses the judgment or qualitative insight of the analyst, attributes so important to the economist who must make real decisions in business or government.

Richard Conner raised the diversity dilemma in his 1985 SAEA Presidential address. While acknowledging the pressures to diversify, he worried that "as a professional group we lack communality, cohesiveness and unity" (p. 2). He urged that we not diversify to the point where none of our programs is effective (p. 6). John Ikerd chided ag economists for not responding to globalization of agriculture by broadening our professional concepts of farm organization and markets. Len Shabman stretched the disciplinary bounds of applied economics in discussing beliefs and values in dealing with "acceptable risk" in new agricultural technologies. AAEA President Neil Harl observed in 1983, "...a substantial price would be exacted from society if agricultural economists were to turn inward toward intellectual isolation" (p. 849). He went on to observe that we seem to be doing so. In his 1990 AAEA Presidential address Warren Johnston identified structural pressures in agriculture that will force greater professional diversity for ag economists.

This paper briefly examines contributions of economics to an understanding of diversity, identifies

Lawrence W. Libby is Professor and Chair, Department of Food and Resource Economics, University of Florida. Review comments by Emerson Babb, John Holt, John Gordon, and Burl Long of the Department of Food and Resource Economics are gratefully acknowledged.

Copyright 1991, Southern Agricultural Economics Association.

current sources of pressure on our professional island, suggests the challenges of dealing with those pressures and concludes with a few prescriptions. I have been guided by Don Dillman's advice (p. 2) that a presidential address should worry a bit about the discipline, be sufficiently scholarly to not embarrass the editor, be profound but not *so* profound that I will be unable to appear in the hallways afterwards, and to conclude on time.

THE ECONOMICS OF SPECIALIZATION AND DIVERSITY

The discipline of economics, always versatile and accommodating, provides logical underpinnings for specialization *and* diversification.

Specialization

Much of neo-classical economic theory rests on the simple, intuitively appealing principle of comparative advantage. There are gains from specialization in a business firm, the economy of a state or smaller political jurisdiction, or a nation. Yielding to comparative advantage permits an enterprise at any level to achieve greatest possible total return in output or income within a defined and stable market situation. Success among specialized producers in an economic system requires exchange or trade. Comparative advantage is determined by such physical attributes as location and climate, by infrastructure, and by human institutions. Interaction between diversification and research is an important determinant of system productivity (Habasch). A firm or economic system that chooses to specialize gains by accommodating the principle of comparative advantage and by the effect of specialization on the productivity gains from research. Simply put, with a narrow range of production processes to consider, research effort may be focused. There is also the possibility, of course, that research will produce major innovations that will permanently *alter* comparative advantage. Recent developments in biotechnology, for example, could create a whole new set of specialization incentives within agriculture.

The rough public sector counterpart to the above conclusions come from Olson's *Logic of Collective Action*. The more heterogeneous the political goals of participants in a consent seeking activity, the more difficult and costly it is to gain that consent. If everybody looks and thinks alike, it is easy to get them to agree. The instrumental value of that observation may affect design of decision rules and organizational strategy in public groups. If consensus is the key performance variable for an academic department, for example, a certain faculty recruiting strategy is suggested. Once consent is achieved within any enterprise, it may be targeted on a concrete goal that will satisfy everyone. The growing influence of single issue political action committees is a case in point.

Diversity of both input and output inevitably introduces complexity and greater uncertainty for the firm manager. Whether the manager is an individual seeking professional excellence in an academic setting, an interest group leader seeking to exercise political influence, or a business person attempting to market for profit, specialization has advantages.

Diversification

The economic advantage of a *mixed* portfolio of products or services relates mainly to risk reduction. Economies of size and scale in farm production, for example, encourage specialization that may lead to greater fixed cost, limiting flexibility as conditions change. Imperfect information about the biological features of comparative advantage, including the full list of options, leads managers to resist specialization. Cities that relied exclusively on American Elms to shade their neighborhoods experienced the vulnerability of specialization first hand. Ecologists argue for plant diversity in urban and agricultural landscape as a hedge against future Dutch Elm-like disasters. An early farm management text stated that no system of agricultural production could succeed on one crop alone (Benson and Betts, p. 5, as cited in Babb and Long). The general goal in enterprise selection is to reduce the chances that unknown or unpredicted factors will reduce future income or increase its variability. There is empirical evidence that enterprise diversification in agriculture does, in fact, reduce income risk (Sonka and Patrick, pp. 101-104). Sources of risk include various biological, physical, economic, and social factors that may alter the context for production.

Diversification for Development

Diversification is the central policy tactic in many development efforts, both international and domestic. Its purpose is to improve incomes by reducing vulnerability to production or market conditions for a particular enterprise. Schuh and Barghouti suggest a need to divert land, labor, and capital toward new enterprises in the wake of major production innovations for a traditional crop. The Asian "green revolution" led to substantial increases in supply of rice without changes in demand, a situation that could be a net detriment to a given population. The biggest policy challenge, they argue, is to shift labor out of agriculture to new income possibilities. Diversification as a development strategy may emphasize the

regional or national level while encouraging continued specialization at farm level where comparative advantage clearly exists. Occupational mobility is always a constraint for such diversification strategies, often requiring public help with information and training.

Arguments for diversification in the Caribbean emphasize the need to redefine the economic goals that guide resource allocation. The sugar-based economy is seen by many in the region as exploitative of local resources in the interest of economic specialization orchestrated by outsiders. "Monoculture and oligoculture are the evils of colonialism. Since the colonial era focused on needs of the imperial country, production was organized to maximize returns from whatever crop was best suited to the colony and not produced in the imperial country" (Pemberton and Pemberton, p. 21). Such arguments do no question the economic logic of specialization but emphasize distributional consequences of the result, and call for diversifying the economic objectives accordingly. The Caribbean situation is akin to the farm level vs. regional specialization noted by Schuh. Acceptability of the result depends on where the judge is located, size of the decision unit, and the matter of *whose* risk is to be averted by diversification. The Asian rice farmer or Caribbean cane cutter may find little comfort in the fact that his lack of options may support a regional or colonial pattern that actually makes some sense for someone else. Diversification under those circumstances is a way to increase independence and reduce the risks associated with lack of economic self-determination. New farm enterprises may be promoted to improve nutrition within an island country or within the Caribbean region (McIntosh). Reliance on such non-economic goals as bases for diversification can itself be risky if consumer preferences and marketing infrastructure are out of step with policy goals. Good intentions are seldom enough to sustain a diversification effort (see Davis, p. 32). Greater use of sugar for ethanol production is proposed as a way to use the traditional Caribbean mono-crop to diversify income source (Moore). This pragmatic strategy acknowledges the stifling effect of U.S. sugar quotas on traditional sugar markets for Caribbean producers, avoids the tenuous economics of large scale dismantling of the sugar industry, and tries to find alternative uses for a familiar commodity.

Alternative Crops

The search for alternative income opportunities in agriculture has been a prominent theme in USDA domestic research and education priorities in recent years. Various reasons are given. Some feel that U.S. agriculture has become so enamored with increasing yields of "low value" food and fiber that its entrepreneurial vitality has withered (McNeal, p. 4). Another rationale considers new crops as a response to more complex and sophisticated consumer preferences in the U.S. as they expand the demand function and generate economic development at the same time. A farmer may produce something that a consumer wanted all the time but didn't know it. Changing the output mix to provide a more stable local income base may enhance the vitality of rural communities, considered by some to be a valid policy goal. Substitution for more traditional crops already in surplus may reduce the cost of farm programs while reducing the farmer's vulnerability to low price elasticity of demand for most field crops and to disease or weather disasters. Others would diversify U.S. agriculture for strategic reasons, to make us less reliant on other nations for essential products that can be produced here (CAST, pp. 6-8). This argument redefines comparative advantage with major emphasis on institutional rather than economic or biological factors. It is also extended to support import substitution for a state or multi-state region. This is a seductive logic—why should we buy from others when we can grow or make our own? The illogical extension of that line of reasoning, of course, is the very antithesis of trade and specialization—we all do everything and are therefore independent of everyone else. Extremes of argument need not cancel the valid, though limited, economic goals of diversification, however. When market and production potentials match, there are opportunities for economic improvement for some farmers and thereby for some communities or states.

Much has been written about the crops or enterprises showing greatest promise as diversification "alternatives" for U.S. farmers (Dicks and Buckley; CAST). Economic potential is a moving target, obviously depending on an imbalance that may be quickly corrected. One person's "alternative crop" may be another person's main line of work, thus the term itself can be misleading. There are significant impediments to diversification as a deliberate policy strategy (Babb and Long). There must be entrepreneurs with the information, capital, and courage to respond to apparent opportunities. There must be sufficient market infrastructure and coordination to bring willing buyers to the point of sale. There may be unacceptable environmental or social costs associated with the new output mix. No attempt will be made here to present a balanced critique of diversification as an economic or policy strategy for U.S. agriculture. The fact remains that it *is* a development strategy both in and outside of the U.S. and offers

useful insight for the question at hand—professional diversity within agricultural economics.

INTERMEDIATE CONCLUSIONS

A few tentative conclusions may be instructive at this point. The basic assertion is that insights about general strategies of specialization and diversification are transferable. What we learn from agriculture and development is useful in fashioning the land grant university or department in an uncertain world.

1. The economics of specialization and comparative advantage are compelling, a powerful reality vested in certain biological or physical imperatives among competitors or partners in an economic system. These principles guide managers' decisions in business, public bureaucracy, academia or any other enterprise facing limited resources. All are engaged in the fundamentally economic exercise of generating product or service to meet a demand, within a budget constraint.

2. *All* transactions take place within an institutional context that establishes "terms of trade" among actors in an economic system. Changes in rules to capture a public purpose, or manipulate economic or social behavior in the public interest will redefine comparative advantage. Nowhere in this world or in others for that matter, exist the immaculate perception—a free market. No allocation scheme, no product mix, no output level is preordained as "natural." Efficiency is relative, an option among many, subject to instant redefinition as the human context changes. We need not be bullied by the logic of specialization into a set of decisions inconsistent with system needs or goals.

3. Specialization and diversification are deliberate strategies pursued within an institutional context. Each offers something. Management seldom settles on one or the other, but on some mix of the two. The goal is to take advantage of real differences in capability of land or people while not becoming totally vulnerable. *Balance is a function of the setting within which the unit functions, of the goals of unit members, and of the overall unit mission or responsibility.* For example, the land grant university in a state with a relatively stable economy and homogeneous population may find less need to diversify than would one with a rapidly changing economy. A land grant in a very urban state with many public universities may find little need to diversify or to solve problems at all. Diversification may be a deliberate strategy to improve relative conditions for the rural poor or another target population, as a state or university goal.

4. Diversification is intended to be risk-reducing in any enterprise—business, bureaucracy, community, even individual. None of us wants to become obsolete. Risk is a perception about future possibilities and their consequences. Judgments differ among members of a decision unit based in part on magnitude and distribution of those consequences. It is easy to be cavalier about prospective events when all the impacts will go to others. Ultimately, though, collective response by the decision unit (e.g. a department of agricultural economics) is needed.

5. Boundary is a crucial aspect of the specialization/diversity balance. Specialization may be accomplished within parts of a diverse system. To be truly a system with a relevant boundary, however, *those performing specialized roles must be able to influence the mix of activities or enterprises that define the whole.* Slavery or exploitation are just that; neither implies support for a specialized economic system. From a practical standpoint, the decision unit may be a sovereign nation, even a coalition of nations if there is sufficient internal discipline to maintain the balance. The unit could be a state or community seeking a positive economic future. It could be a major university, an academic department, or even a profession cutting across several decision units. Whatever the unit, there must be some degree of self-determination, to understand and respond to the political economy within which that unit competes.

6. There are important distributional consequences of specialization and diversity. Specialization may enrich some, entrap others. Diversification may reallocate opportunity and resources. Some people feel threatened by attempts to diversify; others may worry about the consequence of specialization in a department or in a business. Reduced risk for some may imply greater risk for others. The deliberate goal of a diversification strategy may be to reduce risk for a target population by improving overall nutritional levels or incomes of certain people or increasing minority enrollments in land grant universities.

7. Information is a key variable in the specialization/diversity balance for any decision unit. We must know the feasible options. We must know something about the future decision environment for the firm, the economic, policy, and institutional conditions that will frame the management choices. We need to understand likely costs and returns, the input-output characteristics of the production options of the firm, community, or department. There must be timely communication of risks to members of the decision unit (see Committee on Risk Perception and Communication).

I will now return to the enterprise of interest, agricultural economics, in the land grant university

of the 1990s and beyond. The questions remain—what are the pressures on our academic island? What are the most prominent features of the emerging decision context for ag economics departments and individual practitioners? What, if anything, do we do about it?

THE PRESSURES

Our decisions to diversify and/or specialize are made in the context of the market within which we agricultural economists function. The world out there will expect something of us (hopefully). We must act with a mix of information, judgment, and intuition. Lacking a single enterprise manager across the profession, action will be disaggregated, negotiated, a product of many compromises among people of good will (again, hopefully). The only imperative is that we act in *some* way, not just bounce along complaining about things after they happen. Sets of factors reviewed here in a necessarily cursory fashion deal with changes in rural economy, the political setting for agriculture, the political setting for land grants and stress on economics as a discipline.

The Rural Economy

While the popular image of rural America still has farms and farm families at center stage, the reality is quite different. Images come from the media, political posturing by those seeking association with fundamental rural values and from pervasive wishful thinking about simpler times. "The reality is that rural America's economic status has become uncoupled from the well-being of farmers" (Jesse, p.i). Declining farm employment and increased reliance on non-farm jobs have permanently altered the economic and social character of rural areas. Only 29 percent of non-metropolitan counties were dependent on farming for labor or proprietor income in 1979, accounting for 13 percent of rural population (Bender et al.). The proportion is undoubtedly lower in 1990. Ruralness describes place rather than occupation. Rural people are generally less well-off than urban by many measures, more so in the South than in other regions (Henry, pp. 18-19). Growth sectors are small non-skilled manufacturing and services. Rural people lack essential skills to compete with more urban counties in the South for higher paying manufacturing jobs. "Rural areas continue as prime locations for relatively low wage industrial jobs. However it is not clear that when wages, skills, and education are compared that rural areas will still emerge as low labor cost locations. This is particularly true of the rural south" (Deavers, p. 13). There is increasing diversity *within* agriculture as well. In his 1990 AAEA Presidential address, Warren Johnston spoke of a "mosaic of specialized types of firms ranging in size and intensity from part time operators to large industrialized farms ...sometimes involved in non-agricultural activities as well" (p. 8). John Ikerd describes a new hybrid farm, a smaller, more flexible enterprise with interests outside of production, needing a different mix of government services, including education (pp. 6-8). In Florida and other southern states, some producers are adding overseas operations. The best way to cope with outside competition is to become part of it.

Policies and programs designed to improve things for rural people must obviously go beyond improvements in production agriculture to include more basic human capital investments. In fact, rural farm people are better off than non-farm rural neighbors. Thus, reliance on local or even state revenues for funding rural education in the South may continue the relative deprivation. Mulkey and Henry argue for "...a combination of rural development and rural transition programs consistent with existing market forces as opposed to development-oriented policies designed to overcome and reverse current trends in the rural South" (p. 263).

The mixing of rural enterprises brings greater diversity of rural population. People live out there for many different reasons. Their expectations and demands of public institutions are increasingly diverse as well, dramatically altering the political economy facing the land grant university.

Political Setting

Along with changes in the rural economy have come changes in the public image of agriculture. Agriculture is indeed a problem to many, as fertilizer, pesticides, and animal wastes create various human hazards (Batie). Farm laborers are often at risk in the field and face difficult working conditions; their "plight" is the focus of renewed public attention in the 90s. The envelope of good will that has surrounded and protected agriculture since the 1930s, establishing the context for protective farm legislation, has dissolved. While the origin of this broad public support for U.S. farms and farmers is in some question (see R. Paarlberg) its existence is made most apparent by its disappearance. Farmers are increasingly held accountable for their impacts on the natural resource and social environment. Farm legislation is no longer the private playground of agricultural interests as the 1985 and 1990 farm bills demonstrate. While farmers had been omitted from coverage by various labor, trade, transportation and environmental rules, those exclusions are now in question (D. Paarlberg, p. 8). There is greater attention to policy measures that *require* rather than re-

quest farmers to protect consumer safety and the environment. President George Bush, in a supplement to his 1989 State of the Union message, put it straightforwardly, "Ultimately farmers must be responsible for changing production practices to avoid contaminating ground and surface waters" (p. 92). The national League of Women voters took on the pesticides and food safety issues as a major theme in 1989. Their continuing goal is to get *all* people involved in the debate on these matters (LWV). There are demands that agricultural practice accommodate rather than dominate nature and that such a philosophy guide research priority (see Carriker and Purvis).

More people *care* about what farmers do or don't do than ever did in the past. The politics of agriculture are diverse and confusing. Decisions will be made by businesses and by governments at all levels and locations that affect the mix of economic activities in rural areas. It is best that those decisions be based on knowledge of likely consequence. Departments of agricultural economics in land grant universities must be major contributors to that knowledge.

Land Grants

Our parent organization is under pressure as well. Land grant universities were created more than a century ago to, among other things, help direct science to the solution of compelling human problems. The problems themselves have changed since those early agrarian days. Perhaps the most telling criticism is that land grant scientists, including agricultural economists, have drifted away from their original problem-solving mission. Drifting is the appropriate verb here—there have been no firm decisions to that effect. A drift may be a harder to define or contain than real choices. The best we can do is observe the trends, wonder about their consequences and attempt to encourage various counter-drifts.

Extension and applied research remain the unique components of the land grant universities, yet faculty may be lured or pushed away from those activities. Neither is well understood outside colleges of agriculture, often creating anxiety for those seeking promotion and tenure. Faculty are compelled to publish and sense that more disciplinary efforts sell better with journal editors who, ultimately, guard the professional gates. McDowell worries that the "land grants are being captured by the professors" as pressure for cutting-edge research pulls faculty more toward their non-land grant counterparts and away from problem solving work that really matters to someone. As a result, extension specialists have less useful content to extend, reducing their effectiveness. Extension may be the most vulnerable leg of the stool (Holt; Hildreth).

Declining support of land grant universities may be the inevitable consequence of the changing character of rural economies. If land grants are basically perceived as "ag schools" and agriculture is less visible or prominent than it used to be, it follows that the university will feel the effects. The greater the diversity of the rural economy within a state, the greater the stress on the land grant university. Land grant ag economists often find themselves caught between different groups of state clientele—an agriculture that has always been the most vocal and consistent supporter of land grant programs, and those state interests demanding more responsibility from agriculture in affecting human well-being.

Stress On The Discipline

Some of these pressures affecting the context for agricultural economics within the land grant university may impact the discipline itself. While not *all* innovations in the discipline or methodology of economics result from the changing environment within which we work, some most definitely do. If the abstractions of our discipline seem out of step or inadequate to the task, our innate sense of orderliness intrudes and we seek to change the intellectual superstructure. There are more and more special interest groups within the applied economics rubric suggesting a basic flocking urge among those of like mind. There are both subject matter and disciplinary elements to the groupings. The International Society for Ecological Economics, for example, recently held its first meeting. Their basic point of departure is "macro-economics consistent with physical and biological law" (Ralph d'Arge as quoted in Holden). Sustainability and limits to growth are the subject matter themes given special urgency by recent evidence of intensive agriculture's impact on the environment both in the U.S. and in developing countries. There is also the newly organized International Association for the Study of Common Property bringing applied economists, political scientists, anthropologists, and others together on questions of the "the commons." It is a problem or issue focus with social scientists seeking insights at the boundaries of their disciplines. Efforts to document shifting preferences for natural systems or safe food have produced greater intellectual investment in inferential valuation techniques such as hedonic pricing and contingent valuation.

Discomfort with the neo-classical economic paradigm as explanation or even predictor of human behavior has led to creative innovation in the disci-

pline. [1] Herbert Simon suggested that people are satisfied with something less than maximum net utility in their day-to-day choices. People generally prefer to be better off but also avoid the anxiety that goes with the lust for perfection. Simon, Smith, and other behavioralists seek more definitive understanding of *why* people act as they do, pushing past the disciplinary boundary with social psychology in contrast to the implied mathematical precision of expected utility theory that stretches the neo-classical framework to include uncertainty of future outcomes. Expected utility suggests that people want to define "best" or at least behave as if they do. Institutionalists emphasize the setting for choice, the complex of rules, convention and habit that guide individual action (Hodgson). Patterns of choice and, therefore, system performance are influenced by distribution of the *right* to decide, itself a function of law, custom, and power (see Schmid).

The most telling excursion into the hinterlands from the secure base camp of neo-classical economics may be Heiner's reliability theory. People tend to stick to answers that have worked in the past. They know the possibility of error and may even avoid or at least not seek additional information bearing on a choice in order to avoid making a "bad" decision. In certain situations, such as the environmental impacts or health consequences of certain foods, more knowledge may be neither comforting nor helpful. Farmers' pesticide application decisions, for example, are less a calculated response to economic returns weighed against the possibility of unsafe food supplies or groundwater contamination than a repeat of what seemed to work last year and what other farmers seem to be doing (Purvis, pp. 25-26).

Timely, useful, academically defensible work by agricultural economists in southern land grant universities in coming years will be affected by these and other disciplinary pressures. We seek better understanding of what people do within the complex economic, social, and institutional environment that defines our particular stage of civilization. Contributions from other disciplines are fundamental to that understanding.

Resulting Challenge

Survival of the southern sub species of *Agricolus economica* requires adjustment. Before I offer prescriptions, a brief summary of the challenge suggested by pressures noted above may be useful. First, we will need more anticipatory analysis. We will need better market information, better indicators of the likely demand for applied economists in the future. That means more systematic identification of economic and social patterns that create the problems that we may be able to help define, if not solve. We do good outlook analysis for cotton and soybeans. We should direct some of that talent to analysis of the market for problem-solving economists. Secondly, there is the challenge for greater mobility of human capital. There are built-in impediments to adjustment in the academic enterprise. We economists are living proof of Heiner's notion that decision-makers weigh the value of new information against the consequence of misjudging and making a wrong choice. It would be unfortunate to retool in farm level decision aids just before Extension decides to get out of one-on-one consulting. But if John Holt is correct, Extension will need a quick response capability as niches come and go.

The third challenge is the academic reward system. The pressures on the land grant system, and particularly agricultural economics, require a flexible, responsive system for recognizing professional performance. Finally, and fundamental to other changes, is the degree of disciplinary chauvinism within economics. We cannot expect to participate in solving complex human problems if we resist learning from other disciplines. It is not enough to acknowledge that other disciplines exist; we must learn how to use them.

PRESCRIPTIONS

To return to the original theme, specialization *and* diversification make sense, particularly to economists. Our discipline provides convincing logic for each in situations of limited resources and knowledge, both of which exist everywhere, all the time. But we have choices as individuals, as managers, and as participants in a common enterprise such as a department or a profession. The choices will make a difference—changes in rules and organization affect performance. Our discipline will not make the choices for us. One's position on the matter is some mix of professional judgment about the likely consequences and personal values about the way things should be.

I agree very strongly with those who would emphasize diversity. I feel we should go on the offensive, expand the options, not circle the wagons, ration the provisions, and hope we can weather the attack. We need not embrace diversity for its own

[1] I have benefitted substantially from papers by and conversations with Ms. Amy Purvis, Ph.D. candidate in Food and Resource Economics at the University of Florida, for thoughts in this section.

sake. It *is* more fun, of course, but also it is the organizational and operational mode that will best carry agricultural economics and land grant universities into the next century. I offer more specific recommendations at three organizational levels—department, land grant, and professional association.

Departments Of Agricultural Economics In The South

Changes within departments that tend to promote diversity may be both personal and professional.

Personal

There simply can be no compromise on diversity of race, sex, ethnicity, and even political perspective or style within Ag Econ departments. We must not allow ourselves to become a fraternity house of grumpy clansmen who all look and think alike. Academia may be the last place where personal diversity may be celebrated as a source of creative energy. Any bureaucracy, even an academic department, needs rules. But within limits necessary for operational solvency, differences in approach and work style should be accommodated. Ag Economics departments are political and social systems. They should be open, hospitable, intellectually and culturally dynamic, not intellectually constipated. While there is obviously not a direct correspondence, intellectual diversity may contribute to social diversity, a mixing of "views of the world." The absence of diversity can be dangerous. It makes us more easily dismissable as unresponsive, ill informed, even insensitive. In a recent conversation about a proposal, I was told that the foundation was not interested in "your typical ag economist." No explanations, just assumed irrelevance. We can't stamp out narrow-mindedness among funding sources, but I would like to think we can win or lose on our own merits, not images.

The actions that encourage personal diversity come in hiring, invitation to visitors, and in graduate student recruiting. Graduate students are a precious resource for many reasons, including the infusion of energy and ideas that they bring to a department. The graduate programs themselves must be flexible enough to enable diversity of professional view to prosper, not force a particular definition of competence on all.

Functional

Research, teaching, and extension are distinct yet mutually supportive functions. The essence of the land grant system is the relationship among the three in meeting human needs both on and off campus. It is essential that Ag Econ departments encompass all three, either formally or informally. I recognize that some universities are organized such that extension is separate from research and teaching. Where that is true, agricultural economists must create their own linkage across those functional lines. We must not let the organizational myopia of the past get in the way of overall system performance. We need the extension element to stay in touch with the problems and people that matter for our academic enterprise in the future.

Functional diversity can be a source of strength for the individual as well as the department. A good researcher needs to communicate, and teachers need the intellectual investment that comes from research. Teaching, research, and extension are really just forms of content delivery. An individual is well advised to push his or her product through any channel available. All should have responsibilities in at least two of the three functional areas. The faculty member who diversifies his or her professional portfolio is less vulnerable to unique events like budget cuts, better able to take advantage of change. Diversity must not become an excuse for mediocrity. The individual must be held accountable for excellence and productivity. A faculty member who chooses *not* to diversify his functional responsibility must at least have a healthy understanding and respect for all functions.

Within Discipline

There are competing schools of thought within the sub-discipline of agricultural economics. A strong graduate program must have a solid foundation of neo-classical economics. Students need a complete and rigorous grasp of the conceptual superstructure of "conventional" economics to have choices in his or her own profession. Depth and rigor of content do not necessarily imply more mathematics, however. That neo-classical foundation, hopefully, built in close concert with an Economics Department, should simply provide a point of departure for exploring other theoretical bases for economics. Institutional theory, public choice, ecological economics, and experimental economics are a few of the conceptual paradigms of economics that provide needed intellectual diversity consistent with the changing problems of non-metro America. There should be a good course in the history of economic thought to tie some of that together. Frequent seminaring among those of different intellectual persuasions can add an important dimension to the academic environment.

A department must have its disciplinarians, those who fuss about theory or methods within a selected school of thought. These are the basic scientists of economics. But in agricultural economics, which is,

after all, an applied discipline, all faculty should have a problem-oriented component to their work. Scholarship and usefulness *must* not become mutually exclusive categories or our subspecies will most surely disappear in favor of Departments of Economics. Other faculty may specialize in knowing more than nearly anyone about a particular subject area. There can be, *must* be, excellence within each. Departmental diversity is not inconsistent with depth and specialization of individuals. A department of generalists who know a little about much but not much about anything will not advance professionally. Leave generality to the department chair!

Our professional reward system should emphasize excellence in delivering knowledge and disciplinary depth to students, clients, and colleagues through whatever means available. Acquiring knowledge is not enough—the wise scholar who counsels only with himself or herself is of little use. Means of delivery must extend well beyond the professional journals. We should reward those whose knowledge is versatile, who are willing to take risks as economic problems change. Professional excellence for an ag economist also requires contributions to the collective aspects of an academic enterprise, the discussions, debates, and activities that keep the unit aware of and responsive to the changing political economy.

Among Disciplines

One response to pressures at the disciplinary boundaries of economics is to diversify by discipline within a department of agricultural economics. Likely candidates for inclusion are law, sociology, mathematics, anthropology, psychology, philosophy. A department that can do so is better positioned to be useful in the land grant university of the 21st Century. Neil Harl who has achieved national prominence in both law and agricultural economics, has stated, "One of the major strengths of agricultural economics has been that the profession has reached out to other disciplines in addressing real world problems of significance" (p. 849). In my view, that integration can occur *within* a department of agricultural economics and to the benefit of all who are there. We ag economists have an inherent inclination for smugness and a little mixing of disciplines can be cathartic. Furthermore, a productive mixing of disciplinary perspectives is more likely *within* a management unit than when several departments must cooperate in some formal way. Faculty with disciplinary backgrounds outside of economics can establish useful professional bridges to their parent departments on campus. The problem of judging quality when several disciplines are together needs attention, bit is not a crippling problem. The mechanics of peer review for promotion and tenure are up to us, the faculty; surely we can accommodate differences among disciplines as we do among function and school of thought within a discipline. In my experience, there is often less diversity among than within.

"Disciplines have almost inevitably entered a period of decline and atrophy when disciplinarians have come to believe that the discipline existed to permit them to pursue their own gratification. Agricultural Economics is not a playground for agricultural economists" (Harl, p. 853). There are no natural, pre-determined boundaries to our discipline *or* our departments. Both are products of the professional judgment of the membership, subject to modification and variety among states and universities.

The Land Grant University

There is really no alternative for the 1862 Land Grants. We must continue to expand the subject matter and problem focus of our extension, teaching and research programs consistent with the changing character of rural America. Taking the specialization route, pulling back to areas of proven comparative advantage, could limit the land grants to those states with a concentration of agriculture. A public university lacks the single-minded clarity which enables Olson's interest groups to achieve efficient targeted action. We are subject to demands of a fickle public, uncertain of what they prefer. *All* states can benefit substantially from the land grant approach, but many of them do not yet know it. There is no compelling need to change the mix of disciplines within colleges of agriculture and life sciences beyond what departments might do themselves. I suspect that Department of Agricultural Economics are best able to help colleges analyze economic changes relevant to the land grant mission.

Seeking New Clients

Some of the most vocal, animated support for cooperative extension programs has come from urban areas. Extension offices in Detroit and Philadelphia, for example, (see Hood and Schutjer) have large, competent, very professional staffs. The action or delivery element of the system may be ahead of the research base in some cases. Expanded nutrition, youth at risk, urban gardening, and even neighborhood housing education have been popular in some urban counties. There are potential clients who desperately need the problem solving and assistance so fundamental to the land grant model. The engineers, sociologists, biologists, nutritionists, and economists have the disciplinary and problem solving skills to help, but the market for their expertise is not

really functioning. Demand and supply information is inadequate. Recipients of urban service seldom associate it with the college of agriculture at the state university. The land grant market *can* function in cities, as it has with local government clientele, but it will take some effort. Similarly, the teaching programs in Colleges of Agriculture can prepare people for a wide range of careers outside of assumed agricultural ties. I would *not* recommend a headlong rush to urban research and extension. But the essential point is that the mission and concept of the land grant university are far more versatile and resilient than many of the people providing the leadership.

There is nothing but tradition tying us to the notion that growing things for fun and profit is the single human act from which all land grant activities must spring. As the federal tether weakens with declining funds, states have the opportunity, indeed the necessity, to shape their own land grant agendae. We cannot wait for people to ask for help. We must cultivate demand, define problems that we are able to help solve, and solve those problems. The land grant agenda cannot be *just* a market phenomenon, responding to those with ability and willingness to pay. There will not likely be a forceful, funded legislative initiative to help the rural poor find the means for economic survival. But their needs are relevant to the unique mission of land grants—the obligation to confront the most compelling societal problems that exist precisely *because* they fall outside the political access system. Specialization is its own source of tyranny, as discussed in the Caribbean case above. Diversification may represent a deliberate effort to confront comparative advantage, to reallocate the product of the land grant system simply because we feel it an appropriate response to need, if not to effective demand.

Finally, we must deliberately, but ever-so-gently, eliminate the perception that land grant expertise is just the technical support base for commercial agriculture. That has never been true, but some have operated as if it were. The perception gap goes both ways—to those who ask what we have done for them lately, and those who never considered the land grant university relevant to their needs.

Structure

If land grants are to respond to research and education niches (Holt) there must be greater "quick strike" capability. Problem-oriented task groups that cut across departments and disciplines are essential. These must have budgets to implement good intentions. As department chair, I have serious reservations about letting deans and directors set priorities, but some cross-discipline problem-focused work is necessary. Deans must remember that real substance comes from faculty, and that substance includes informed judgment about what is important, and what can be done about those important problems.

We should not confuse reorganization with progress. New structures may produce different performance, but real success ultimately depends on the quality of the people involved, not on the organization chart (Wallace).

Geography

As land grant agendae evolve and diversify within states, leaders must acknowledge that socio-economic patterns and relevant problems do not coincide with state boundaries. Problem-sheds are multi-state and multi-national. Means by which faculty may formally collaborate across state lines are essential. The regional research and extension committee structure can help bring multi-state attention to economic problems. Insights, results and approaches are mobile, and with active leadership, these regional committees can be an important component of the land grant model. The committees should be more aggressive in defining and analyzing regional problems *and* in seeking extramural funds to do so.

International applications provide further opportunities for faculty to hone problem-solving skills, deepen their experience base, and get new insights that have utility at home. Participation in an international project is an important opportunity for professional diversity for *all* faculty, not just those who concentrate on international work. One cannot assume that research results or educational approaches produced in Texas are directly applicable in Ecuador. There are significant cultural features in both places that may be overlooked only at substantial peril to the analyst. But the land grant university should have an active international component to help solve problems abroad *and* to extend the options for solving state problems. As an aside, it often seems that faculty with primary interests in state problems adapt better to making international applications than internationally-oriented faculty adapt to problems at the state level.

Southern 1862 land grants have a special opportunity to gain intellectual diversity across institutional lines through formal collaboration with 1890 land grants. Jim Bonnen has asserted that the 1890s are doing a far better job of delivering on the historic problem-solving mission of land grants than are the 1862s that "are becoming more expensive and elitist in outlook and less responsive to the problems of people in their state and local communities" (p. 162). We agricultural economists from *all* land grant uni-

versities in the southern region should make a deliberate and persistent effort to collaborate on meaningful teaching, extension, and research programs. These linkages need not start at the top but among real faculty with something deliver. *It is most important that neither the disciplinary myopia of some faculty nor the turf-guarding instincts of some administrators discourage this interaction.* If 1862s within the region fail to participate with 1890s, I can assure you that 1862s from other regions will do so. Virginia has had a special incentive program to encourage short term exchange of faculty between the 1862 and 1890 institutions. More of that is needed.

Professional Association

The Southern Agricultural Economics Association was created in 1968 from a section of the Southern Agricultural Workers Association (Havlicek). As Hal Harris explained so eloquently to the few remaining participants at a Wednesday morning SAEA concurrent session in 1988, few of the 519 charter members were women, even fewer were blacks; a fiefdom of the old-time southern department heads really held the reins of authority (1988). Much has changed. Sources of pressure on our discipline, departments and academic homes have been discussed above. The American Agricultural Economics Association is adapting to this diversity, with the annual meeting format increasingly defined by the mix of interest groups within the professional fold (Johnston). The national journal is receptive to good articles in a broad range of subject matter and problem content. An AAEA adaptive planning committee created by Presidents Sandra Batie and Les Mandersheid in 1987 has suggested encouraging the formation of targeted interest groups of ag economists and that these groups be given acknowledged status within AAEA.

We in the Southern Association, members of AAEA as well, should adapt to diversity in a similar fashion. The success of any organization depends on a loyal, active, growing or at least sustained membership. Service and opportunity for professional expression are prerequisite to a supportive membership. Annual meeting content must keep up with the problems and subject matter needs confronting ag economists in the region. The SJAE should attract the best thinking of members with special attention to economic problems of the South. I applaud the efforts of the AAEA Committee on Status of Blacks to formulate symposia and invited paper proposals for both the Southern and American associations. I would welcome proposals from the Committee on Women Agricultural Economists (CWAE), the Extension committee, resource economists, and other constituent groups as well. There is no obvious need to create southern counterparts to these national committees so long as committee members can direct their attention to problems of a regional nature.

Neither the American nor the Southern Association is doing particularly well at serving those thousands of MS graduates of ag economics departments working in business or government. We work with them on projects, we invite them as guest lecturers to bring the real world to the classroom, but we have not really attracted them to the profession. That is a worthy challenge.

CONCLUSIONS

Professional survival by agricultural economists in the more complex and competitive political economy of the 1862 and 1890 land grants will take some effort. We can all survive as individuals, of course, by becoming accountants or preachers or academic hermits. Some among us have done so already. But I for one want to continue as an ag economist and I genuinely believe in the land grant idea. Accommodating diversity is difficult, even painful. It does not eliminate need for choice in direction or action; it just broadens the range of options.

A few cautions are in order. Babb and Long suggest several impediments to diversification strategies in agriculture that have relevance for professional diversity in ag economics (pp. 11-14). First is the need for better information about the options. We need to define, analyze, and communicate economic shifts affecting the potential demand for applied economics. Just as the enterprise manager needs specific cost and return data to consider an alternative, we need to anticipate consequences of adding a sociologist to the department faculty or developing a new program thrust in local government finance.

A second impediment to successful diversification is entrepreneurship. Both the individual faculty member and the manager must take some risks. "A grain farmer who decides to try something else just because grain has become less profitable may be courting disaster. The entrepreneur must search for opportunities...that will best utilize the resources he or she commands.... Government payments...are not likely part of the alternative agriculture scene" (Babb and Long, p. 12). A farm management specialist seeking change should be sure he's cut out for analyzing the roots of rural poverty, particularly when the land grant support system (i.e. "government payment") still implicitly subsidizes attention to commercial agricultural rather than to the rural poor. The individual and academic manager must consider how mobile or adaptable their human capital really

is. Managing a more diverse department or college has its own special challenges.

Babb and Long refer to market coordination, infrastructure, and lack of venture capital as additional impediments to ag diversification. The ag econ faculty member, department and profession must be similarly cautioned in the adjustment process. The individual venturing into a new subject matter area may encounter an indifferent, even hostile market setting. Those who demand our analytical or teaching capability may not know it yet. When I began exploring opportunities for local government finance and officer training in Florida I was asked, "What are you aggies from the state university doing messing with local government research and training?" The market will take some further cultivating. Diversification in any enterprise takes some venture capital. Those with the funds to lend or allocate may be nervous about the uncertain outcomes. When choosing a new program direction or hiring someone from a new discipline implies redistribution of resources, those used to having what they want will complain. There are distributional implications of any set of rules, and changing the rules will hurt some and help others.

There *are* cautions in a strategy of professional diversification. They cannot be taken lightly. Momentum and inertia are powerful forces; we also know from physics that a body at rest tends to remain that way. While the impediments are real, they need not be debilitating. We faculty, the ultimate action units of any professional system, must be willing to consider new applications, new problem sets for our own work, and new colleagues for their expertise. Our discipline is versatile; we should be as well. At the same time, we cannot as individuals sacrifice our depth of skill and experience in pursuit of scope, the human capital caution noted by Babb and Long. The resource economist may invest time in understanding the economics of solid waste. The undergraduate teacher may adapt content and approach for a special training session for government economists or business managers in Poland or Ecuador. The farm management extension specialist may seek clients in small business or public agencies. To repeat, diversification is not an excuse for shallowness or mediocrity. A diverse, responsive department or college can succeed only by exploiting true comparative specialties of individuals who can accommodate new ideas and applications. Managers should reward those who can and will accommodate. Individuals and departments must acknowledge comparative advantage, but with recognition that it is not a static reality but a set of tendencies defined by the institutional environment within which we work.

In his invited lecture to this Association in 1990, Shabman contrasted resiliency with risk aversion in responding to potential hazards of new farm chemicals (1990). Colleges of agriculture *can* pursue a deliberate strategy of institutional resiliency in an uncertain political economy of the land grant university. We deal with risky ventures, demands from new clientele, pressure to study new problems or to stretch disciplinary boundaries *not* by declaring them to be too controversial or dangerous in light of traditional land grant missions, but by developing the ability to "bounce back" when those hazards occur. "A confidence in resilience will mitigate against strong risk aversion, not because risks are taken without consideration of possible adverse consequences but because a belief in resiliency instills a confidence to proceed (with a new technology) while the potential for harm is not fully determined" (Shabman, p. 15).

Diversity in pursuit of a resilient ag econ profession, built on responsive academic departments within a strong land grant system is our best path for survival.

REFERENCES

Babb, E.M. and B. F. Long. "The Role of Alternative Agricultural Enterprises in a Changing Agricultural Economy." *So. J. Agr. Econ.*, 19.1(1988):7-15.

Batie, Sandra. "Agriculture as the Problem: New Agendas and New Opportunities." *So. J. Agr. Econ.*, 20.1(1988):1-11.

Bender, L., B. Green, T. Hady, J. Keuhn, M. Nelson, L. Perkinson, P. Ross. *The Diverse Social and Economic Structure of Rural America.* Washington, D.C.: USDA, ERS, Rural Dev. Res. Rpt. 49, 1985.

Benson, O.H. and G.H. Betts. *Agriculture.* Southern Edition. Indianapolis, Indiana: Bobbs-Merrill Company, 1918.

Bonnen, James T. "The Future Role of the 1890 Land Grant Institutions." Paper presented at AAEA annual meeting in celebration of the Centennial Anniversary of the 1890 Institutes, 1989.

Bush, George. "Building a Better America." Supplement to the 1989 State of the Union Address. Washington, D.C.: The White House, February 9, 1989.

Carriker, Roy and Amy Purvis. "Agriculture and Water Quality: Old Problem, New Urgency." *So. J. Agr. Econ.*, 22.1(1990):27-32.

Committee on Risk Perception and Communication. *Improving Risk Communication.* Washington, D.C.: National Academy Press, 1989.

Conner, J. Richard. "Observations on Changes in Factors Influencing Agricultural Economics and Some Implications for the Profession." *So. J. Agr. Econ.*, 17.1(1985):1-6.

Council for Agricultural Science and Technology. *Development of New Crops: Needs, Procedures, Strategies, and Options.* Rpt. No. 102, October, 1984.

Davis, Carlton. "Product-Product Dimensions of Agricultural Diversification Strategy in the Caribbean Community: Prospects and Dilemmas." *Agricultural Diversification: Policies and Strategies,* Proceedings of the 19th West Indies Agricultural Economics Conference, pp. 30-36. St. Augustine, Trinidad: Department of Agricultural Extension, 1990.

Dicks, Michael and Katherine Buckley. *Alternative Opportunities in Agriculture: Expanding Output Through Diversification.* Washington, D.C.: USDA, ERS, AER 633, May, 1989.

Dillman, Don. "The Social Impacts of Information Technologies in Rural North America." *Rural Soc.*, 50.1(1985):1-26.

Habasch, Mona. "Impact of Diversification on Productivity in U.S. Agriculture." Master's thesis, University of Florida, 1990.

Harl, Neil. "Agricultural Economics: Challenges to the Profession." *Am. J. Agr. Econ.*, 65.5(1983):845-854.

Harris, Harold. "The SAEA: Twenty Years—Discussion." Paper presented at SAEA annual meeting, 1988.

Havlicek, Joseph. "The Southern Agricultural Economics Association: Past, Present and Future." *So. J. Agr. Econ.*, 16.1(1984):1-5.

Heiner, Ronald. "The Origin of Predictable Behavior." *Am. Econ. Rev.*, 73(1983):560-595.

Henry, Mark. "Southern Farms and Rural Communities: Developing Directions for Economic Development Research and Policy." *So. J. Agr. Econ.*, 20.1(1988):13-28.

Hildreth, R.J. "After Seventy-five Years of Cooperative Extension—What in the World is Ahead?" Paper presented to National Association of State Universities and Land Grant Colleges, November 20, 1989.

Hodgson, Geoffrey. *Economics and Institutions.* Philadelphia: University of Pennsylvania Press, 1988.

Holden, Constance. "Multidisciplinary Look at a Finite World." *Science,* 249.6(1990):18-19.

Holt, John. "Managing Change in Extension." *Am. J. Agr. Econ.*, 71.4(1989):869-873.

Hood, Lamartine and Wayne Schutjer. "Cooperative Extension's Role in Shaping the Future of Land Grant Universities." *Choices,* Second Quarter 1990, pp. 24-27.

Ikerd, John. "U.S. Agriculture at a Crossroads: Implications from Agricultural Economics." *So. J. Agr. Econ.*, 18.1(1986):1-9.

Jesse, Edward. "Introductory Remarks." *Rural Vision—Rural Reality: Efficiency, Equity, Public Goods, and the Future of Rural Policy,* Kenneth Deavers, ed. Madison, Wisconsin: Department of Agricultural Economics, 1990.

Johnston, Warren. "Structural Change and the Recognition of Diversity." Presidential Address to the annual meeting of the Am. Agr. Econ. Assoc., 1990.

Just, Richard and G. Rausser. "An Assessment of the Agricultural Economics Profession." *Am. J. Agr. Econ.*, 71.5(1989):1177-1190.

League of Women Voters. "America's Growing Dilemma: Pesticides in Food and Water." Washington, D.C.: League of Women Voters Education Fund, 1990.

Libby, Lawrence. "Restructuring Agricultural Economics Extension to Meet Changing Needs: Discussion." *Am. J. Agr. Econ.*, 68.5(1986):1313-1315.

McDowell, George. "Land Grant Colleges of Agriculture: Renegotiating or Abandoning the Social Contract." *Choices,* Second Quarter, 1988, pp. 18-21.

McIntosh, Curtis. "Incorporating Nutrition Goals in Diversification Programs." *Agricultural Diversification: Policies and Strategies,* Proceedings of 19th West Indies Agricultural Economics Conference, pp. 71-78. St. Augustine, Trinidad: Department of Agricultural Extension, 1990.

McNeal, David C. "Variety for the Horn of Plenty." *Extension Rev.,* Spring, 1989, pp. 4-5.

Moore, Richard. "CBI Sucrose to Ethanol: Sugar Cane Market Diversification Opportunity." *Agricultural Diversification: Policies and Strategies,* Proceedings of 19th West Indies Agricultural Economics Conference, pp. 89-96. St. Augustine, Trinidad: Department of Agricultural Extension, 1990.

Mulkey, David and Mark Henry. "Development Strategies in the Rural South: Issues and Alternatives." *The Rural South in Crisis: Challenges for the Future,* pp. 249-264. Boulder, Colorado: Westview Press, 1988.

Olson, Mancur. *Logic of Collective Action.* Cambridge, MA: Harvard University Press, 1965.

Paarlberg, Don. "The Changing Policy Environment for the 1990 Farm Bill." *J. Soil and Water Cons.* 45.1(1990):8.

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

Pemberton, Carlisle and Rita Pemberton. "Improving the Methodology for Formulation of Diversification Strategies." *Agricultural Diversification: Policies and Strategies,* Proceedings of 19th West Indies Agricultural Economics Conference, pp. 21-29. St. Augustine, Trinidad: Department of Agricultural Extension, 1990.

Purvis, Amy. "Heiner's Reliability Theory." *Dept. Food and Res. Econ.* University of Florida. May, 1990.

Schmid, Allan. *Property, Power and Public Choice.* New York: Praeger, 1978.

Schuh, Edward and Shawki Barghouti. "Agricultural Diversification in Asia." *Finance and Dev.,* June, 1988. pp. 41-44.

Shabman, Leonard. "Environmental Hazards of Farming: Thinking About the Management Challenge." *So. J. Agr. Econ.*, 22.1(1990):11-21.

Simon, Herbert. "The Failure of Arm Chair Economics." *Challenge,* November-December, 1986, pp. 18-25.

Smith, Vernon L. "Microeconomic Systems As An Experimental Science." *Am. Econ. Rev.,* 72.5(1982):924-955.

Sonka, Steven and George Patrick. "Risk Management and Decision Making in Agricultural Firms." *Risk Management in Agriculture.* Ames: Iowa State University Press, 1984.

Wallace, L. Tim. "Extension's End Closer Than We Think?" Unpublished paper, Department of Agricultural Economics, University of California-Berkeley, 1990.