

Ethical Dilemmas in Agriculture: The Need for Recognition and Resolution

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ABSTRACT Agricultural research and education ended 100 years of funding under the Hatch Act with a decade of unprecedented criticism of goals and outcomes. This paper examines the way that planners can accommodate some of these criticisms within a framework for understanding the ethical and social goals of agriculture that is consistent with traditional practice. The paper goes on to state that some criticisms are so fundamental that they cannot be readily incorporated into this framework. They must be regarded as a challenge, both politically and intellectually, to longstanding practices within academic institutions devoted to agriculture.

Introduction

In 1987, U.S. agricultural research concluded 100 years of administration and funding under the Hatch Act. This law established the USDA/Land Grant triad of government/experiment station/university, and supported science and technology for agriculture through non-competitive, centrally administered public funds. American agriculture enjoyed a reputation for success during much of this time, but the most recent decade has been one of criticism, and re-thinking of agricultural priorities (Johnson, 1984; Danbom, 1986; Kirken-dall, 1987). One important group of critics, associated with 1972's "Pound" Committee of the National Research Council (NRC) (NRC, 1972; 1975), questioned the scientific quality and efficiency of agricultural research, but the more celebrated critics have focused upon the social goals that contemporary agricultural production techniques (whether implicitly or intentionally) have tended to serve, (Hightower, 1975; Berry, 1977; Jackson, 1980; Schell, 1984; Doyle, 1985; Fox, 1986). There is an extraordinary range of concerns

and complaints expressed in the writings of this latter group of critics, and many different client groups are alleged to have been ill-served. A theme common to most criticisms, however, is that agricultural leaders have, *de facto* or by design, pursued a goal of maximizing the productive efficiency of the American farm. Critics allege that it is the USDA/Land Grant system's persistent search for greater yields that is the well spring of problems for American agriculture.

The views of the critics have been reinforced by a recent legal finding. In November 1987, California Rural Legal Assistance (CRLA) won a judgment against the University of California (UC). CRLA claimed that producers who have aggressively sought a competitive edge have benefited disproportionately from publicly funded agricultural science, at the expense of small farms and farm labor that had been displaced by the resulting technological changes. The court found that UC had negligently failed to assess whether research to develop a mechanical tomato harvester would have an adverse impact upon UC's legisla-

tively mandated small farm clients, (Bishop, 1987; Hager, 1987; Sinclair, 1987). The judge traced the university's legal commitment to serve small farms back through a series of appropriations bills, all the way to the original Hatch Act of 1887. Other critics cite negative impacts upon environmental quality, upon the poor or oppressed peoples of developing nations, or upon consumer health, but the common theme is that the USDA/Land Grant's service to the (increasingly) large farm has lowered the price and improved the availability of food and fiber at the expense of other social goals.

The technical accuracy of this charge has been challenged on several fronts,¹ and there is a continuing need to examine the legitimacy of these critical opinions. Nevertheless, many scientists and research administrators within the USDA/Land Grant system have accepted the critics' suggestion that the research agenda for agriculture must be broadened to reflect a wider range of social goals, (Ruttan, 1983; Jordan, 1986). It is therefore appropriate to move beyond negative critiques of past agricultural practice, and to begin establishing a vision of the goals that might guide agriculture in the future.

Although established educators within agricultural programs were not, at first, receptive to the various criticisms described above, over the long term there has been a comprehensive effort to rethink the goals and structure of the agricultural curriculum under the leadership of USDA's Office of Higher Education. The Office of Higher Education Programs was established under the authority of the Undersecretary for Science and Education as a consequence of the 1977 farm bill (Stansbury, 1986).

One component of this effort grew out of a USDA study on U.S. agribusiness industry's perception of deficiencies in recent agricultural graduates. The three year study was supervised by a panel of executives from large corporations, and identified twelve commonly cited areas of deficiency among agricultural graduates. The National Agriculture and Natural Resources Curriculum Project (NANRCP) was initiated in 1983 under the direction of Richard Merritt, former Dean of Cook College, Rutgers University. NANCRP was jointly funded by USDA, industry, and university contributions with a mission to address the top third of priorities identified in the survey of employers. The top four deficiencies in agricultural graduates, as identified by agribusiness employers, were (in rank order):

1. Computers for agriculture.
2. Systems approaches to agriculture.

3. Ethics as applied to research and policy.

4. Skills for problem solving research.

To date, NANCRP has completed work on priority 2), systems, and is nearing completion on priority 3), ethics. It was determined that considerable work on priority 1), computers, was already ongoing at universities, and that this deficiency would be met by 1990 without help from NANCRP funding. Work on priority 4), problem solving, is in the very early stages, and funding for this effort is somewhat uncertain.

The NANCRP effort on ethics and policy began with a series of informal meetings intended to identify members of a workgroup, and to define the parameters of the curriculum area. This process included some four national meetings stretching over a two year period before the workgroup had been stabilized and general goals agreed upon. The final workgroup included four philosophers, three agricultural economists, one social scientist, and five agricultural physical scientists (Soil Chemistry, Animal Science, Biochemistry, Food Science and Nutrition).

The ethics workgroup reached consensus on the general approach to the subject matter, on the specific subject matter topics that would be developed under the NANCRP aegis, and upon the specific products that it would endeavor to produce. In general approach, it agreed to emphasize cases, that is, situations in which policy analysts or decision makers would be faced with problems of ethical importance, rather than ethical theory. The specific products it agreed to produce were a workshop (or series of workshops) for faculty and administrators who were contemplating the inclusion of ethics material in courses and curriculum, and text materials that could be used by a broad range of faculty in agricultural disciplines, as well as philosophy, for teaching ethical issues. Workshops for faculty and administrators were held at the University of Kentucky in June of 1987. Negotiations are nearly completed with John Wiley, Publishers for a book to be available in the Fall of 1990.

The specific subject matter developed by the ethics and policy workgroup was as much a function of the interests and specialties of team members as it was of its consensus vision of what subject matter in ethics and policy ought to include. The workgroup recognized that individual instructors will make many modifications, additions, and deletions from the material it has collected, and such modifications are to be encouraged. The intent here was largely to provide a starting point for faculty, particularly from the biologically based sciences, who wanted to initiate teaching in

ethics areas, and who felt somewhat at a loss for a starting place.

Critics of the workgroup's conception of their project might argue that the teaching of ethics initiated in such a context would implicitly accept the traditional goals of the system, and would, therefore, be unresponsive to critics who assume alternative goals. To what extent is this criticism legitimate?

In what follows I will present arguments for four points. 1) American agriculture (and the USDA/Land Grant system) has always had implicit ethical goals. Although these goals are rarely articulated or defended, they nonetheless exist, and, in fact, have given agricultural practice a firm foundation in one of the enduring traditions of ethics for the modern age. 2) When we analyze this foundation, we discover that many of the criticisms that have been raised against agriculture are consistent with the traditional ethical goals of American agriculture. To the extent that this is true, what is needed is merely a modification of traditional goals, rather than a full scale attack upon them. 3) Some criticisms, however, are far more fundamental. Although it is not clear how the conflict between these more radical criticisms and the traditional orientation of agriculture may be resolved, it is in confronting and contemplating these more radical attacks that we come to the fullest understanding of agriculture's implicit goals. 4) Finally, I will conclude with some reflections on "the need for recognition and resolution" indicated in my title. I will argue that, although we can clearly make progress in making our agriculture more responsive to a broader set of ethical goals, it would be an act of supreme hubris to suggest that the more fundamental conflicts I will describe can be resolved in any final sense. Nevertheless, we have a moral commitment to a "recognition and resolution" of these moral dilemmas, however paradoxical that might appear.

1. Agriculture's Implicit Ethical Goal

What philosophical vision justifies the selection of any particular set of production technology or arrangement of resources for agriculture? A philosophical study of agriculture should provide some basis for understanding the traditional view of how production decisions might be justified in light of social and ethical goals. Although it is far beyond the scope of this paper to articulate and defend any full vision of the appropriate philosophy for American agriculture, it is possible to describe the philosophical framework that appears to implicitly inform the reasoning of many

scientists, administrators, and agricultural leaders. If we take our cue from the common theme of agriculture's critics, the goal that has guided agriculture in the past century is one of increasing farm productivity. But is this an ethical goal?

The philosophical rationale for increasing agricultural productivity forms an explicit part of John Locke's 1690 argument on private property:

... he that encloses land, and has a greater plenty of the conveniences of life from ten acres, than he could have from an hundred left to nature, may truly be said to give ninety acres to mankind: for his labour now supplies him with provisions out of ten acres, which were but the product of an hundred lying in common (Locke, 1690, pp 23-24).

Locke's idea here is that the multiplication of benefits (the conveniences of life) that follows an increase in the productivity of agricultural land serves as a moral justification of social policies (here, the establishment of private property) that achieve this end. The ethical justification for this viewpoint is neither complicated nor even controversial. If there is more food and fiber produced, there will be more to go around; hence, there is a clear benefit to the consumers of agricultural products. If food and fiber can be produced more efficiently, it will help the producers have more time and money for enjoying the other "conveniences" of life. If other things are equal, any possibility of improving the productive capacity and efficiency of agriculture is a good thing.

This form of philosophical reasoning was offered as an explicit moral framework for the evaluation of public policy in Jeremy Bentham's 1789 *Principles of Morals and Legislation*. Ethical theories that evaluate action by comparing the net benefits of all options have been dubbed "utilitarian" ever since, and utilitarian moral standards have been explicitly applied to the food and farm system in recent debates (Tweeten, 1983; Thompson, 1988). To some people, Bentham's moral calculus seems to be little more than common sense. In order to determine what one ought to do, one simply compares the benefits and harms of each option. The choice that leads to the greatest net benefit (or the least net harm) is the choice that is morally right to make. The emphasis upon maximization or optimization of benefits is what I mean by *the utilitarian maxim*.

Although Locke is not typically thought of as a utilitarian philosopher, the utilitarian maxim is consistent with the argument he uses to justify enclosing land. It might be described as utilitarian in the sense that the change in agricultural land holdings that he advocates would be justified if it

optimized (or at least improved) the benefits traditionally derived from agriculture. The argument could be applied as easily to a new feeding regimen for livestock, a new chemical, or even an investment in public education. It is important to note two features of this argument for future reference. First, the utilitarian maxim applies equally to all people affected by an action. The justification of an agricultural technology may depend far more on the benefits that go to consumers in the form of reduced food costs than it does on benefits for producers themselves. Second, the utilitarian maxim recognizes that some may not be benefited and, indeed, may be harmed by the action. It was certainly Locke's understanding that the large land holdings of the English aristocracy would be threatened by the action he proposed. The argument is that, although some are harmed, others are benefited to a much greater degree. This means that the optimizing strategy of a utilitarian argument is one that sees ethics as the theory of making trade-offs, of balancing benefits for some against harm for others.

To the extent, then, that agriculture in general and the USDA/Land Grant system in particular has stressed increasing agricultural productivity and reducing agricultural production costs, a utilitarian ethical framework has been implicit. Although it is clear that few producers, administrators, or scientists have thought of themselves as utilitarians, it is equally clear that they have felt themselves to be morally justified in taking actions that have the laudable goals of increasing or optimizing the social benefits derived from agriculture. The utilitarian maxim merely shows what they already knew in an implicit or common-sense fashion.

2. The Moral and Empirical Problems in the Implicit Goals

Despite their initial plausibility, however, utilitarian decision procedures have historically been plagued by a number of philosophical problems. Some of these problems, such as the transition from individual to social utility, or the comparison of interpersonal utilities,² are applicable to agricultural decisions only to the extent that they provide a basis for rejecting utilitarian approaches altogether. Other problems, though familiar as general questions for utilitarian moral theory, raise particularly important concerns for agriculture. Of these general concerns, an empirical problem in anticipating consequences, and a moral problem having to do with the problem of making trade-offs are particularly cogent.

a. The Empirical Problem. One general ob-

jection to optimizing decision procedures is simply that it is impossible in practice to obtain complete and reliable information on all the relevant consequences of a policy decision. Some factors are inevitably left out, and, when these factors affect human health and safety, the economic well-being of minority groups, or environmental quality, the entire moral calculation of relative benefits can be drastically modified. Costs or harms that are simply left out of a utilitarian calculation are called *externalities*. Such costs are sometimes left out either because the decision maker does not have a reliable way to measure or compare them, and sometimes they are left out simply because the decision maker does not have to bear them. When UC decided to develop the tomato harvester, they could have reliably predicted that some growers and workers would experience adjustment costs as they found new forms of employment. In comparison to the estimates of research expenditures, these costs would have been difficult to measure; if we count the emotional stress suffered by dislocated growers and their families, it would be nigh impossible to calculate these harms. What is more, these costs were not to be born by UC, but by the growers and workers themselves. As such, UC decision makers had a double reason not to count them.

From an ethical perspective, however, these costs must be counted for the decision to be justified by the utilitarian maxim. Decision makers must make stringent efforts to reflect all such "externalities" in any estimate of social benefit or harm, or they cannot truly be said to have optimized outcomes. Many critics of the USDA/Land Grant system call attention to such externalities. The "neglected dimensions" noted by contributors to Ken Dahlberg's 1986 book on agricultural research are examples of harms or costs that might alter the evaluation of productivity oriented research streams, if they were properly "internalized." Among the topics cited by the authors in Dahlberg are long term energy costs of high input production techniques (Pimentel, 1986), social impacts of the changing farm/size distribution upon rural communities, emotional stress suffered by financially troubled farm families (Heffernan, 1986), and health effects both for agricultural workers and for consumers of agricultural products (Coye, 1986).

Decision makers with a single minded focus on increasing crop yields may well neglect adverse effects relating to nutritional quality of food, impact upon small farms, or deteriorating soil fertility and water quality. The mere fact that one lacks data, or will not have to pay these costs oneself,

however, is no rationale for ignoring them. Although the problem of externalities is administratively difficult to resolve, it is philosophically simple, in that the way these uncounted harms must be weighed in comparison to counted benefits is unambiguous. It is a problem of failing to count all the relevant outcomes that is at issue here, rather than not knowing how to count them. Mentioning and accounting for these costs is not a *revision* of agriculture's utilitarian approach to ethics; it is merely a *completion* of the benefit-cost calculation.

b. The Moral Problem. Any benefit optimizing decision procedure begins its consideration of the relative costs and benefits to society with a pre-existing distribution of wealth and social opportunity. In addition, the procedure for making trade-offs must also develop some way of quantifying benefits and harms (or costs). Without a previously given starting point and a method for comparing benefits and harms, the utilitarian ethic is without practical applicability. Both of these requirements, however, have met with strenuous objection on moral (as distinct from methodological) grounds since the time of Bentham.

Optimizing is meaningful only when some distribution of wealth, power, and opportunity has already been assumed; but what if that distribution of wealth, power, and opportunity is itself unjust? Optimizing theories are relatively impotent to criticize or rectify injustices reflected in the initial distribution. The problem is generally recognized even among advocates of optimizing strategies (Knight, 1935; Buchanan, 1987; Johnson, 1987). If the given that one starts with includes a pattern of land ownership, for example, that systematically precludes a majority of the population from achieving even minimal requirements for a decent life, what may be needed is land reform. If the given that one starts with includes a pattern of employment patterns that systematically excludes one race from opportunities for advancement, what may be needed is legal intervention to assure opportunity. It will be far easier to articulate these needs in the language of human rights than in the language of costs and benefits.

Furthermore, many authors, and especially those representing the tradition of natural law, feel that it is inappropriate to quantify certain types of moral harm, such as killing an innocent human being, or even telling a lie (Mortimer, 1950; Harris, 1986). If there are acts that must never be committed, or consequences that must never be allowed, then these moral harms cannot be factored into the accounting that forms the

basis of an optimizing decision. One can imagine, for example, a cost-benefit argument that attempts to evaluate a new chemical by comparing the moral cost to the health of a few agricultural laborers with the pennies saved by millions of food consumers. Although the benefit for an individual consumer may be trivial, when multiplied several million times it might be thought to outweigh very significant harms to a few workers. It is not clear that such a calculation has ever been performed to evaluate an agricultural technology, but just such a calculation was at the root of the infamous Ford Pinto case (Hoffman, 1984).

One strategy for accommodating these two limitations to the cost-benefit thinking of the utilitarian ethic is to recognize constraints upon the optimizing procedure. Such constraints are often expressed in terms of rights held by affected parties. These rights would not be subject to optimizing trade-offs, but would be guaranteed, at least so long as they were not voluntarily surrendered. Aiken (1986) applies a constraints strategy to agricultural research policy. He suggests that one way of making agricultural research moral would be to sharply restrict the range of outcomes that could be sacrificed as costs in exchange for the income and price benefits associated with increasing productivity.

Furthermore, any attempt to justify agricultural practice in terms of its income and price benefits presupposes the constraints of existing law. It therefore recognizes a full set of property, liberty, privacy, and health and safety rights already enjoyed by American citizens. If these constraints on the optimizing decision are poorly defined, the moral problems associated with distributive justice and with absolute (non-quantifiable) moral harms can be shifted to a discussion of the justification for constraints upon the optimizing decision procedure.

c. Modified Utilitarianism. A clear statement of the familiar moral and empirical problems associated with utilitarian strategies suggests a pragmatically modified decision strategy. The evaluation of agriculture in terms of its capacity to provide income for producers and inexpensive food and fiber commodities for consumers would be augmented by a process of thinking through absolute constraints and unanticipated, unwanted outcomes. If agricultural leaders were cognizant of these familiar problems, better decisions might result, even if the main goal of agriculture continued to be expressed in terms of efficiency and productivity. The optimizing goal that justifies increases in productivity would need to be explicitly and persistently moderated by constraints, and

by a more rigorous attempt to integrate the full range of consequences into an agricultural research decision. The anticipation of unwanted consequences would be a task for empirical research. Although this modification of utilitarianism might have a mongrel appearance to the philosophically inclined, it might nevertheless be defended as the (pragmatically) best approximation to an elusive moral norm.

If a modified utilitarian approach to the ethics of agricultural research policy is followed, the basic rationale of optimizing benefits that guided agricultural research policy during the past century is in need of important, but philosophically modest, renovation, but not radical revision. Many critics, however, have proposed challenges to contemporary agriculture that will not be easily integrated into the optimizing strategy. They represent more fundamental challenges to the general philosophical orientation of research goals. Although it is not clear that they present decisive objections to the optimizing strategy, they nevertheless demand serious attention. Furthermore, careful discussion of these more radical challenges may help advance our understanding of the "constraints" problem for agricultural research.

3. The Fundamental Challenges

Although there may be many types of radical challenges, including even that of ethical vegetarians (Mason and Singer, 1980; Regan, 1983), there are three groups who stand out as having advocated a rejection of agriculture's implicit ethical goal, and the substitution of an alternative philosophical vision. They are: a) environmental critics; b) critics who stress themes of international justice; and c) contemporary Agrarians, defenders of the family farm who reject entirely the ethic of productive efficiency.

Environmental criticisms of agriculture have a long history, and indeed, some historians mark the birth of the contemporary environmental movement with the publication of Rachael Carson's *Silent Spring*. Since this book was above all else, a polemic against agricultural pesticides, it is clear that environmental critics are among the most successful and persistent.

Others have tended to criticize agriculture from the perspective of international economic justice. Since agricultural production decisions are frequently made against a backdrop of international trade and development concerns, it has been suggested that the radical inequality that exists between industrialized nations (such as the

United States) and the emerging nations of the post-colonial developing world vitiates the validity of narrow optimizing concerns. The dominant moral question, in the mind of these critics, is always one of whether the research advances or retards progress in redressing the worldwide problems of poverty, dependency, and powerlessness. To the extent that the USDA/Land Grant system reinforces an unjust power structure, worldwide productivity improvement may represent false moral gains (de Castro, 1973; Collins and Lappe, 1977; Nagel, 1977; Shue, 1980; O'Neill, 1986). It may be possible to reflect the concern for worldwide economic justice as a constraint problem. It may also be that the political problems overwhelm the capacities of agricultural research policy. Whatever the ultimate outcome, the criticism from the viewpoint of international economic justice represents a challenge to the traditional view of agriculture's goals.

In addition, the Agrarian tradition of agricultural thought may also be a deep challenge to the general philosophical approach of optimizing benefits from agricultural production. Traditionally traced to Thomas Jefferson, the Agrarian tradition clearly includes such distinguished American thinkers as Ralph Waldo Emerson (1870; 1904). In modern times, Agrarian themes dominate Wendell Berry's critique of the USDA/Land Grant system (Berry 1977), and figure prominently in some of Jim Hightower's writings, as well (Hightower, 1976). Agrarians can be typified as those who hold that the primary moral importance of agriculture must be derived from its impact upon human virtues and the formation of individual moral character. It is hard to reconcile this vision with the type of benefit optimizing strategy described above, yet agricultural scientists who develop emotional attachments to farming and to farm families often find themselves drawn to Agrarian themes. Furthermore, the importance of Agrarian rhetoric to the American agricultural policy debate cannot be denied.

In my view, each of these three challenges must be regarded as important and coequal. They each demand that we rethink the optimizing strategy I have described above, and as such, they represent three approaches to the philosophy of agriculture that must be confronted and respected, even by those who wish to defend a more traditional approach. It is impossible, however, within the limitations of a single paper, to do justice to the arguments of even one alternative, let alone three. As such, I shall confine my remarks below to some of the environmental critics, and shall rely upon the willingness of my readers to

consult the original sources I have cited for some development of the other two points of view.

Turning, then, to the criticisms of deep ecologists³ and environmental holists, unwanted impacts upon environmental quality are seen as a symptom of a shallow and arrogant understanding of humanity's place in nature, rather than as something approximating an economic externality. These critics frequently reject economizing or optimizing policy strategies as incapable of adequately comprehending the interactive dependence of human populations and natural systems. They argue that goals must be derived from an understanding of ecology, and that natural systems place constraints upon agriculture which have been neglected in the past. The viewpoint of environmentalist critics is represented below by three environmental philosophers, E. F. Schumacher, Aldo Leopold, and Baird Callicott. The objective is to see if the concerns of these three thinkers can be accommodated within a modified utilitarianism, or whether they must be treated as a philosophical challenge to agriculture's traditional model.

E. F. Schumacher's 1973 book *Small Is Beautiful* was certainly a touchstone for the worldwide environmental movement. The central theme of the book was widely taken to be an attack upon technologies that consumed relatively large quantities of fossil fuels, and required large investments of fixed capital. In the chapter entitled, "The Proper Use of Land," however, Schumacher takes up a central question in agricultural ethics. The argument of the chapter is first a criticism of what Schumacher calls "the philosophy of the townsman," and second a description of an alternative program. The "townsmen" see agriculture's economic woes as evidence that farming or ranching is a declining enterprise, and see the central problem of agriculture as one of improving farm income. Schumacher finds this view deficient. He writes

We know too much about ecology today to have any excuse for the many abuses that are currently going on in the management of the land, in the management of animals, in food storage, food processing, and in heedless urbanization. If we permit them, this is not due to poverty, it is not as if we could not afford to stop them; it is due to the fact that, as a society, we have no firm basis of belief in any meta-economic values, and when there is no such belief the economic calculus takes over. (Schumacher, 1973, p. 116)

In Schumacher's view, the problem arises when

agriculture is understood as essentially defined by its capacity to produce and market salable commodities. In making a statement of the wider goals of agriculture he writes

A wider view sees agriculture as having to fulfill at least three tasks:

- to keep man in touch with living nature, of which he remains a highly vulnerable part;
- to humanize and enable man's wider habitat; and
- to bring forth the foodstuffs and other materials which are needed for a becoming life.

I do not believe that a civilization which recognizes only the third of these tasks, and which pursues it with such ruthlessness and violence that the other two tasks are not merely neglected but systematically counteracted, has any chance of long-term survival. (Schumacher, 1973, p. 113)

These remarks on agriculture must be understood in the light of Schumacher's overall attack upon "economic values," and his campaign to substitute a norm of "Buddhist economics" in its place. In criticizing economic values, Schumacher means to attack the utilitarian emphasis upon increasing incomes; by interposing "Buddhist economics" in place of this emphasis, he means to suggest that there is an alternative way of conceptualizing economic activity, one that would trace production, distribution, and exchange according to the long term impact of these activities upon the natural system needed to support all. Economic policies that encourage consumption in order to promote economic growth are, on the view of Buddhist economics, incompatible with the goal of a permanent and stable society (Schumacher, 1973, pp. 30-33).

Although Schumacher's choice of words has the ring of late-sixties hippie jargon, his point should be understood as a shift in philosophical perspective. Political theorist Paul Diesing has argued that Schumacher's critique is a complete rejection of the traditional utilitarian perspective on agricultural production. On this traditional view, Diesing writes,

[N]ature appears in three forms: natural resources, cultivated land . . . , and externalities of production. Natural resources are free goods, *res nullius*, nothings, having no value until they are "produced" and made available for exchange. (Diesing, 1982, p. 294)

When the central goal of agriculture is understood in terms of production, agricultural land is a form

of fixed capital, and this, in turn, suggests that this land should be devoted to its most productive use. Although unwanted outcomes can be factored into the optimizing equation either as costs or as constraints, the result looks a bit like pre-Copernican models of the solar system, where epicycles and reversing rotations were added on to the charts for planetary motion in order to preserve a theory that falsely placed the Earth at the center of the universe. In Diesing's view, Schumacher rejects this strategy when he insists that agriculture is not a form of industry. Land is *not* to be seen as fixed capital or even as a factor of production at all; instead, land is the basis for life itself, a precondition for productive economic life, and not merely one among many factors available for productive appropriation. In Diesing's view, the agrarian component of Schumacher's thought is its essential philosophical theme. The more celebrated work on appropriate technology flows from Schumacher's view of agriculture, rather than the reverse.

Conservationist Aldo Leopold was also a critic of what he called "economic valuation." Leopold is best known among philosophers for his essay "The Land Ethic," from *A Sand County Almanac* (1949). The essay begins with a passage in which Leopold describes the rejection of human slavery as one of the key instances of moral progress in history. The key to this event, he thinks, was in ceasing to understand human beings as property, in extending the scope of the moral community to include all human beings (Leopold, 1949, pp. 201-203). Leopold's message is that we must now find a way to think of our relation to land, understood, again, to mean the biosphere generally, as something other than mere property.

Like Schumacher, Leopold finds any attempt to reflect conservationist concerns within the kind of optimizing calculations that underlie a traditional approach to agricultural decision making hopelessly lacking. In Leopold's view there is ample basis for care and concern about ecological values, but the problem is that the importance people place upon nature cannot be reflected in monetary terms. He writes

When one of these non-economic categories is threatened, and if we happen to love it, we invent subterfuges to give it economic importance. At the beginning of the century songbirds were supposed to be disappearing. Ornithologists jumped to the rescue with some shaky evidence to the effect that insects would eat us up if birds failed to control them. The evidence had to be economic in order to be valid. (Leopold, 1949, p. 210)

Here Leopold would also seem to be rejecting the notion that unwanted outcomes of agricultural production decisions can be accommodated by a broader framework of costs, and including some constraints. Indeed, it is property rights, Leopold's target, that serve as the model for constraints. Instead, we must rethink our lives so as to attain a fuller appreciation of the interdependence between human and natural communities.

One of the chief sources for understanding these links is agriculture. Early on in his book Leopold writes, "There are two spiritual dangers in not owning a farm. One is the danger of supposing that breakfast comes from the grocery, and the other that heat comes from a furnace." (Leopold, 1949, p. 6) One who lives on a farm cannot, in Leopold's view, long forget the dependence of human action upon the underlying natural ecology. Written in the 1940's *A Sand County Almanac* does not reflect Schumacher's concern that agriculture is on the verge of destruction, but Leopold does express cynicism about the optimizing strategies of experiment station research:

The State College tells farmers that Chinese elms do not clog screens, and are hence preferable to cottonwoods. It also pontificates on cherry preserves, Bang's disease, hybrid corn, and beautifying the farm home. The only thing it does not know about farms is where they came from. Its job is to make Illinois safe for soybeans. (Leopold, 1949, p. 117)

The upshot of Leopold's land ethic is, as for Schumacher, a rejection of the optimizing strategy that takes increasing income, increasing production, and increasing benefits to consumers as its core. Although both authors find it difficult to formulate an alternative in terms that might be convincing to a committed maximizer, their point, after all, is just to say that a strong commitment to maximizing outcomes, even under certain constraints, is philosophically and morally wrong.

Neither Schumacher nor Leopold was professionally trained in philosophy. The work of translating their insights into systematic ethical theories has been undertaken by a score or more of philosophers who have produced an enormous body of work, mostly in the past decade. One of the main bones of philosophical contention has been whether environmental imperatives can be adequately justified by the traditional concept of ethics: optimizing good outcomes, and respecting rights or constraints. Among those who have argued eloquently that environmental ethics is *not* simply an extension of traditional ethics is J. Baird Callicott. This theme emerged clearly in a

1980 paper entitled "Animal Liberation: A Triangular Affair," in which Callicott criticized the animal rights/animal welfare movement.

Philosophically, animal welfare theorists have argued that non-human animals are capable of experiencing morally significant forms of pain and deprivation. As such, they argue, human beings are morally required to count these experiences of pain or deprivation when making optimizing decisions, or when calculating the trade-offs of benefit and harm (Singer, 1973). The animal rights argument differs in philosophically important respects, but it, too, extends a traditional moral concept, that is, having rights, to non-human animals. If the usual account of rights can be correctly applied to non-human animals, then human beings should recognize even stronger moral obligations to animals, and should, in fact, accept inviolable constraints on the uses to which they may be put (Regan, 1983). Callicott criticized both of these arguments by noting that neither could account for the concern that game management professionals have for wildlife populations and for endangered species. In fact, an overriding moral concern for the deprivation or rights of individual animals would preclude many of the game management strategies for culling populations that were exceeding carrying capacity and for protecting species. Conservationists, in other words, are concerned about the role played by species in the balance of nature, and their concern (if any) for individual animals is purely a consequence of their relation to the whole (Callicott, 1980).

Like many philosophers who have written on the subject, Callicott's original interests were in wildlife and conservation, but, not surprisingly, he has recently gotten around to agriculture. He was, in part, led there by Leopold. Leopold's career as a conservationist was based upon his pioneering studies on game management. One of Leopold's early discoveries was that intensive farming was the primary culprit in the precipitous decline of game species. It was not that predators were "bad citizens," but rather that the context in which predator and prey had always interacted with one another was being dramatically upset (Callicott, 1987, p. 286). Callicott cites this theme in Leopold's work as evidence that Leopold should not be regarded as simply extending the scope of moral evaluation, but as proposing an alternative that stresses a holistic, community-based approach to value. In a recent article on agroecology, Callicott argues that we must resist the intellectual temptation to reductionism. In the sciences, reductionism leads to a view of nature that is purely mechanical, and stripped of value that

might be apparent, even obvious, when natural phenomena are viewed in the context of daily life. In ethical theory, reductionism leads to an inappropriate emphasis upon the moral units of pleasure, satisfaction, and rights. In tandem, scientific and ethical reductionism combine to produce a point of view that is oblivious to the value of preserving the whole (Callicott, 1988).

The point to glean from these references to Schumacher, Leopold, and Callicott is that a significant group of agriculture's critics will not be satisfied by even the most aggressive attempt to internalize environmental externalities, or to recognize constraints when agricultural practices threaten to violate human rights. Clearly, many environmental critics do not intend such a thorough challenge to traditional decision making for agriculture, but to these three thinkers, at least, it is the optimizing-under-constraints approach to ethics that is at the root of our problems. In order to understand the point of their objections, one must be willing to entertain a radical departure from deeply rooted cultural traditions about how ethical decisions ought to be made.

4. Some Reflections on Recognition and Resolution

It will first be useful to undertake a brief summary of how far we have come. First, it was argued that in emphasizing productivity and efficiency for farm production, farmers, ranchers, and other agricultural leaders have adopted an ethical framework, whether they are aware of it, or not. It is *not* as if having an ethical framework for making decisions in agriculture is something that is being proposed here for the first time. Furthermore, it is an ethical framework that is consistent with the one suggested and defended by some of the finest minds of Western civilization, so there is every reason why the emphasis upon productivity and efficiency ought to be taken very seriously by anyone who wishes to understand the ethics of agriculture. It was also noted, however, that a narrow interpretation of this goal, one which assumes that optimizing productivity and efficiency optimizes all values, is bound to encounter a rocky road. A better understanding of the optimizing decision strategy would be one which: 1) recognizes an extremely comprehensive set of outcomes that are to be "counted" when optimizing calculations are done; and, 2) also recognizes a set of constraints, based on traditional human rights, that are not subject to the benefit-harm trade-offs, but, instead, place inviolable limits on the acceptability of certain actions. It

was noted that there is a great deal of work to be done to understand this strategy in more detail, but that it is a program whose philosophical underpinnings, at least, are clear.

In moving to a consideration of more radical criticisms, we move beyond our traditional framework, and this, I think, is bound to introduce some confusion into the issue. In these concluding remarks, I want to alleviate some of that confusion, but I cannot, I fear, do away with it altogether. I will conclude by saying that we must learn to live with a bit of confusion on the philosophical basis for an ethics of agriculture, and that we will be better people if we do so. First, however, let me clarify the issue to the extent that it can be done.

If we confine ourselves to some of the environmentally based criticisms of contemporary agriculture, laying aside, again, criticisms dealing with international justice and with the family farm, the upshot of the analysis I have just given is that these criticisms are of two kinds. First, when people protest about the effects of nitrogen fertilizers upon ground water, or about the effects of chemicals upon agricultural laborers, or even about the long term effects of soil and water depletion upon future generations, the ethical force of the claims they make comes from the fact that these are either unwanted consequences (e.g. externalities) or, worse, violations of basic human rights. These claims are not philosophically unambiguous, since, for example, there is much debate over whether the unborn people of future generations *have* rights. Nevertheless, the framework, the ground-rules, so to speak, of resolving these disputes, is fairly clear. Our philosophical, legal, and political traditions teach us how to argue about conflicting claims of harm or rights, and although we seldom come to complete agreement about them, we can, with a little effort, make progress through patient argument, conversation, and compromise.

The second kind of environmentalist criticism is that made by Schumacher, Leopold, and Callicott. It is a criticism that says, "Halt! It is not just that you are doing wrong; you are going about it all wrong." It is a criticism that says what is most valuable, and most important to learn, about environment and ecology simply cannot be learned as long as we continue to think within the moral categories of trade-offs and constraints. It is a view that, in essence, allows no compromise, since it is a matter of learning to see the world, to see agriculture, with different eyes. If we are truly sympathetic to this new view of the world, we have crossed the Rubicon, and cannot return

to an ethic of optimizing outcomes and respecting basic rights. This more radical kind of environmentalist is not demanding concessions for health and safety, or for future generations. This kind of environmentalist is confronting us with a new world view, a challenge to rethink values at a deeply fundamental level.

If we recognize these two types of environmental criticisms as separate and distinct, we can, I think, make better sense of how and when ethical dilemmas are likely to be resolved. Ethical problems of the first sort involve accommodating and recognizing values through communication and through the political process. These problems can be resolved by honest and steady commitment to the traditional venues in which one makes a case for a given point of view. These traditional venues include the courts, political campaigns, public hearings, the Press, and also research and publication in more scholarly outlets. Ethical problems of the second sort will not be resolved by any form of direct human action. To the extent that a person sees the world through the traditional values *or* these new ones, I think, there will inevitably be a bit of residual confusion. It will, I think be hard to understand how someone can see things so differently. Whether people reject the perspective advocated by these deep ecologists, or come to believe in it wholly, the conflict is "resolved" only in personal and historical terms.

To conclude, however, let me say that I can see no reason why this residual confusion is any reason to ignore these radical challenges. Indeed, it is only through a radical rethinking of the world and human purpose that we have abandoned the superstitions, the monarchical dictatorships, and the human slavery that plagued our civilization in earlier times. I do not know whether there is comparable moral progress to be made in rethinking agriculture the way that deep ecologists, advocates of international justice, or defenders of family farms would like. We will never know if we lazily take comfort in the tried and true; and although there is wisdom in avoiding radical change in fact, it is folly to reject the suggestion of radical change out of hand. Although we may not resolve these radical philosophical debates, it is in the recognition of them that we come to know what our own philosophical values are. Modest though it may seem, self-knowledge is the best that philosophy has ever promised. I can only hope that the need for self-knowledge, and self-criticism, is self-evident.

NOTES

1. In particular, one may question the *causal* allegation that

research affects changes in the size distribution of farms (see Martin and Olmstead, 1985), or the *normative* evaluation that it is large farmers who are the primary beneficiaries, as opposed, for example, to food consumers (Madden & Thompson, 1987).

2. In its most basic form, the problem was recognized by John Stuart Mill (Hoag, 1986). The problem of interpersonal comparison of utility was noted by Lionel Robbins (1935). The problem of constructing societal preference functions is demonstrated by Kenneth Arrow, (1951, 1963). Recent discussions include Edward F. McClennan (1983); and Glenn L. Johnson (1987).
3. The phrase "deep ecology" denotes an approach to environmental ethics claiming that traditional human-centered moral concepts are not capable of expressing the basis of human duties to preserve ecosystems (Naess, 1984).

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