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Shifting the paradigm: alternatives to the fatal harvest of industrial agriculture - Reflections on the past and future of farming by California agricultural students

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Abstract

In its transformation towards industrialized, monoculture-based production, modern agriculture has brought a staggering number of negative ecological, social, cultural and economic side effects. Throughout the entire food system, it is possible to trace this crisis as it manifests itself in soil erosion, pesticide pollution, loss of biodiversity, inequitable social consequences, farm foreclosures and a myriad other environmental and social problems. Concerned about this reality, a number of students from seven California agricultural universities, engaged in a series of discussions about the dimensions and severity of the problems affecting modern industrial agriculture. Students were not only informed about the crisis but more importantly they discussed real sustainable alternatives to the current dominant systems. Proposed solutions range from the promotion of more agroecological research and education, to creation of conducive policies, local markets and better labor conditions for farmworkers. This important contribution depicts the reflection of young people concerned about the current status of agriculture and their commitment to building a more sustainable and equitable food system, a vision rarely considered by older agricultural scientitsts and policy makers, but that should be taken seriously as it brings new and fresh ideas usually lacking in academic and development circles.

Key words: Agroecology, sustainable agriculture, farm crisis, ecological degradation, low-input farming, organic agriculture.

Introduction

Although productive in the short term, industrial farming in California is an energy intensive process requiring massive external inputs of chemicals, water and petroleum. This mode of production is responsible for many unwanted environmental, social and health related problems. By increasingly expanding at the expense of natural ecosystems, industrialized agriculture is among the most destructive forces on earth. For this reason high-input conventional agricultural systems need to be converted to modes of production that are efficient, and ultimately make use of less external inputs. Such systems have been widely studied and present a viable alternative capable of producing high quality food without degrading the environment. To assume this challenge, the question of agricultural production has to be seen as a problem that evolves from a purely technical one to a more complex challenge characterized by social, cultural, political, and economic dimensions, as needed change will require major societal restructuring[1]. It is essential that agricultural colleges throughout California incorporate a broader agroecological vision in their curricula. Likewise, government institutions need to acknowledge the serious threat to the environment and disadvantaged social groups (such as migrant and immigrant farm workers, especially women) posed by industrial agriculture. Such offices need to engage in a thorough reevaluation of existing policies in order to effect a positive change in how modern farming is practiced in California. Policies that reflect a bias toward industrialized growing methods need to be replaced by those that support holistic and ecological approaches to the production of food, timber and fiber needs. Conversion by large numbers of farmers to more sustainable methods can be stimulated by shifting the focus of agricultural subsidization away from damaging conventional agricultural practices. Such monies can be re-directed toward environmentally and socially responsible farming methods. Additional incentives and stipends for the rehabilitation of land, water systems, soils and wildlife habitat should also be encouraged.

Community Development vs. Corporate Expansion

The last fifty years have been witness to an unprecedented shift away from the "family farm" towards monopolistic agribusiness. The net result has been the elimination of family farmers at a rate of 200 farmers a day, along with costly degradation of producing acres due to toxic inputs, excessive tilling, salinization, loss of diversity in cultivated food varieties, and the dismantling of an employment sector. Finally, despite the increased levels of production of a few key cereal crops, mostly devoted to animal feed, worldwide 800 million people continue to go hungry on a daily basis [2]. In order to combat these destructive trends, existing laws and resolutions aimed at the equitable distribution of resources (water, the protection of working acres and "open space"—habitat) must be strengthened and enforced. Citizens, government and institutions need to discourage the privatization of natural resources and oppose the award of intellectual property rights to research corporations and private companies for the sole purpose of profit. Furthermore, incentives for the development and use of alternative and/or appropriate technological energy and input sources, (solar, wind small scale hydroelectric power, biogas methane converters, animal traction, composting, crop diversification, etc) would decrease the farmers' dependence on current high-cost, high-input, gross polluting systems. To help offset the original high cost of these technologies; government support could

be made available through subsidies and practical assistance in the implementation of community ownership strategies[3] . Partnerships between governmental, farmers, civil society and non-profit organizations would encourage cities to collaborate in regional planning strategies including protection of farmland from urban development. Such actions will help to stabilize land values and thus reverse the escalating loss of productive acres to development. Strategies to encourage good land stewardship practices would feature incentives that target individually owned parcels of not more than 160 acres.Such measures ensure diverse rather than monopolistic ownership of productive lands. Innovation in types of incentives geared toward the preservation of small-farm systems could include a "deferred payments" scheme modeled after the '401K' plan with a maturation of approximately 20 years. The funds thus invested would become available upon transference of property to other individuals or family members who make a commitment to retain the land for sound agricultural purposes. As a result, pressure on aging farmers to sell the property can be relieved. With the age of the family farmer averaging 57 years old and rising, this strategy would further encourage successive generations to remain on the land.

Making Connections: Going Local

Through the development of new marketing strategies that increase consumer accessibility to locally grown products, regard for the family farmer as a valued neighbor and community member will be renewed. The farmer-to-consumer connection can be reestablished through government incentives and assistance programs for the up-scaling of farmers' markets; the initiation and underwriting of 'locally grown' produce sections in supermarkets; the provision of grant opportunities and other financial assistance in the establishment of community supported agriculture areas in urban and suburban settings; and the promotion of locally grown produce to be served in school cafeterias, local hospitals and similar settings. Support of production cooperatives will subsequently encourage biological and cultural diversity, and thus enrich the variety of food available as well as strengthen local food security.

The Modern Locality: Making use of Urban Spaces

Policies that support urban agriculture as a way to revitalize neighborhoods and provide a sense of community are of paramount importance. With expanding urban and suburban boundaries and encroachment on California's producing acres, the development of food production near major population centers will assist in food security. Not only will urban agriculture connect consumers with producers, but it will significantly lower the financial and environmental costs associated with agricultural transportation. Urban food production provides a critically needed service and can also offer a means of employment to those in need. Edible landscapes, particularly for homeless shelters and other government supported housing, would provide a practical solution to many nutritional and community needs. To encourage urban gardens, tax incentives could be offered to landowners for access to vacant lots. Harvests could be bought individually or purchased by a community agency for distribution to food banks in the local area. Such measures will ensure that low-income families and the elderly have access to fresh, nutritious and affordable foods. Urban gardens act as living classrooms that provide urban youth and others with a means to reconnect with the natural world and to learn about agroecological processes.

Agriculture in the Classroom: Educational Recommendations

New educational policies are needed in order to provide for the equitable distribution of support funds to all colleges and universities involved in agricultural education. Alternative programs and curricula for the research and development of appropriate technologies and agroecological methods will provide a solid foundation for our future leaders and policy makers regarding the importance of biologically integrated, socially and ecologically responsible agricultural practices. In order to maintain a balanced perspective of agricultural research and education that is relevant and responsive to the needs of farmers, their participation in the educational process and the development of research agendas is essential. Additionally, students wishing to pursue a career in agriculturally related disciplines should be required to complete a field-study internship that would require their participation in the day-to-day management of a growing cycle under the supervision of a practicing farmer. The development of a curriculum for the K-12 schools and adult education programs would focus on the relationship between food and nutrition, the connection between healthy soil and healthy food, and the importance of preserving balanced ecosystems. Through the collaboration of farmers' groups and county offices of education, students and farmers could be connected through school gardens, internships, and summer employment opportunities.

Natural Processes and Technological Policy

Industrial technologies that promote the ever-increasing use of non-renewable resources in agriculture need to be reevaluated in order to provide an honest critique of their processes and outcomes. Such studies will aid in the formation of objective predictors and principles for guiding the development of a technological transition in the agricultural engineering sector. Policy decisions concerning agriculture, our environment, and the future provision of public works (water projects, transport systems, agricultural machinery, land-use patterns, etc.) must reflect the folly of basing our long-term agricultural strategies on the ever-dwindling supply of fossil fuels. Incentives to redesign farms that capitalize on the natural value of biological diversity would promote preservation of habitat for wildlife- while creating models of agriculture that exhibit the flexibility and stability of natural ecosystems[4]. Through the support of farmer-to-farmer information-intensive networks and their inclusion in the research and development process, farmers can ensure that developing technologies are responsive to their needs[5] . As a result, a new era of collaboration between farmers, wildlife preservationists, land-grant institutions, and extension services will flourish. New policies will need to mandate the assessment, redesign and perhaps avoidance of technologies that have been determined to be detrimental to the environment and to people. Through these mandates, manufacturers would be held responsible for establishing precautionary principles that would mitigate the negative social and environmental impacts of their products. Rather than have society and the environment bear the financial brunt of clean-up efforts, a "green tax" levied on manufacturers whose products are judged to be environmentally detrimental could be redistributed to farmers actively engaged in environmental stewardship and the reclamation

of damaged lands.

Agricultural Labor: A Precious Resource

At present, agricultural production is dependent upon hundreds of thousands of workers drawn mainly from the ranks of immigrant populations and migrant field workers. These laborers form the backbone of agricultural production in California, yet they are often abused, disrespected, underpaid, and forced to work in unsafe conditions. A new vision for agriculture must include social justice for the farm workers. Mandates to insure humane living conditions and adequate pay for laborers need to be enacted. Workers' forums should be encouraged. Such mediums allow labor a meaningful voice in the production process. The contribution of labor to agricultural production would be further enhanced through training, as farmworkers could learn to recognize and report signs of plant disease, pest infestation, or retarded growth. Through such training, a worker's value would extend beyond physical labor to include a degree of expertise in the agricultural sciences thus elevating the status of the worker while benefiting the owner. Many immigrant populations in California come from agricultural backgrounds that, for centuries, have successfully integrated farming with their regional ecologies ensuring conservation of natural resources and agrobiodiversity. Finding ways to tap into this vast storehouse of indigenous knowledge (intercropping, green manuring, agroforestry, etc.) would provide information on methods that could be introduced into modern California management and production practices to great benefit.

Conclusions

The message of this declaration• is simple: the future of farming lies in ecological sensitivity, ecosystem modeling, socially just conditions for workers, renewed interest in the land and community ethic, and a desire to produce nutritious and locally available food. Through the education of our future leaders and policy makers, strong broad-based governmental support, and heightened consumer awareness, the paradigm of industrial agriculture can be shifted to one characterized by the small-family farm model that promotes biological and cultural diversity. Such models would be locally based and feature agricultural principles that are economically viable, politically just, culturally acceptable, and environmentally sound. Clearly the mandate for the future of agriculture needs to reflect a high regard for the natural world and the humans who inhabit it. Through initiating policies that discourage immediate profiteering at the expense of future generations, societies worldwide will benefit from nutritious, abundant food grown in harmony with, and respect for, regional cultures and ecologies. It is the hope of the authors of this declaration that these recommendations will help to further agriculture "beyond organic," and towards a future with social equity, adequate food security and ecological integrity.

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