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"Center for Sustainable Agricultural Systems Newsletter, July/August 1999" (1999). *Center for Sustainable Agricultural Systems -- Newsletters 1993-2000*. 15.
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Center for Sustainable Agricultural Systems

University of Nebraska-Lincoln

July-August, 1999 Newsletter

Biotechnology Issues Discussed at NABC Meeting in Lincoln

Multinational corporate control of the seed industry and concentration of ownership in a few companies were two of the major concerns discussed at the 1999 meeting of the National Agricultural Biotechnology Council titled "World Food Security and Sustainability: The Impacts of Biotechnology and Industrial Consolidation." Farmers, researchers, and industry representatives gathered for three days in June to explore the current and future challenges raised by new technologies in the bio-transformation of crop plants using transgenic techniques. In addition to ownership and control issues, there were questions about who benefits from this technology, who maintains oversight on the process and represents the public good, liability for problems, and sustaining food production for the future.

Per-Pinstrup Andersen of the International Food Policy Research Institute stressed the importance of food for developing countries in the future, saying that most imported grains will have to come from the U.S., and that biotechnology will contribute to intensified production on both good lands and marginal areas. Cornelia Flora from Iowa State University discussed the social impacts of our current separation of management from ownership in agriculture, and the reduced linkages between producers and consumers. She expressed concern about the disconnect of people from their food sources, and that decisions are currently made for efficiency and stockholder profit without considering equity of access to food and resources.

Chuck Hassebrook of the Center for Rural Affairs and UNL Regent emphasized the importance of family farming and how the potentials of global food production can be met by individual entrepreneurs in this country and elsewhere. He stressed the importance of rural community and need for incentives to continually renew our human resources by finding ways to encourage beginning farmers, and the role of policy in this direction. Fred Kirschenmann, family farmer from North Dakota, challenged as unlikely the three claims made by those who promote biotechnology: these technologies will help farm profitability, they will simplify management with more environmentally benign systems, and they will help feed people around the world. In contrast, he believes that feeding the world is a social and not a production problem, that we continue to pursue a strategy of introducing external forces to dominate the agricultural environment, and that

the farm share of the food dollar keeps going down and farmers are becoming factory workers for one of the four large consolidated food companies.

Small group workshops explored the use of biotechnology through discussion and listing priority issues for the future. There are some biological concerns such as gene escape and human food safety, but hope that these can be better understood through more research. Although the benefits of understanding biological processes are obvious, there was much debate about who would control this new technology and who would benefit. Some of the challenges are an over-emphasis on profits at the expense of the public good, lack of effective public policy debate, reduction of consumer choices, and potential for accelerating economic inequity. Some argue that these are social problems unrelated to generation of new technologies, but the general feeling was that most issues in food systems are interconnected, and we need to seek agreement on how to use the potentials of these new technologies.

There were several other interesting speakers in addition to those mentioned above, including Dennis Avery with the Hudson Institute, and many perspectives represented in the presentations, Q&A, and small group sessions. Complete copies of the proceedings will be available later this year from the National Agricultural Biotechnology Council, 419 BTI, Tower Road, Ithaca, NY 14853, 607-254-4856, NABC@cornell.edu, <http://www.cals.cornell.edu/extension/nabc>.

Submitted by Charles Francis and Pam Murray

University Role in Biotechnology: How Do We Sustain Food Production

Fourth in a Series. There is growing debate about the emerging role of universities in research and applications of biotechnology. Current interest and investment in production and use of genetically modified organisms (GMOs) have sparked a revolution in university research laboratories and fields. Perhaps no single set of new techniques and potential technologies has caused such a substantial short-term shift in focus of people and resources in universities. We hope that encouraging debate within the university community and among our clients will help inform people of the issues and aid in charting a rational strategy for the future.

Global Food Challenges

Critics and promoters of genetically transformed crops agree on the need for increased food production in the future, and agree that we must find ways to achieve this with fewer resources and less negative impact on the environment. In the past it has been possible to expand food production into new or underexploited areas, while today these lands are all in use and we have to intensify production on available acres. The challenge

of a growing human population is compounded by increases in standard of living as well as changes in food preferences to more meat in the diet, and thus an accelerating demand for feed grains. With limits to land and resources, we have to produce more with less.

In a recent biotechnology conference, North Dakota farmer Fred Kirschenmann questioned whether genetically transformed crops will actually help feed more people. He quoted Nobel Prize Laureate Amartya Sen, who found that studies of classic famines through history were caused by lack of "food entitlement" rather than lack of production. Thus hunger has been caused not by low levels of production but by people not having sufficient access to food that is produced. Since hunger is both an economic and social problem, and not one in agriculture, he argues that new technologies that further accelerate the differences between rich and poor people will only make the problem worse in the future. Kirschenmann cites as an example the production and export of soybeans from Brazil--an activity that generates export income for the government and a few wealthy farmers, but diverts food from the local supply and causes an increase in malnutrition. Thus the challenge of meeting global food needs is far more complex than just producing more on the farm or reducing production expenses.

Are Higher Yields Possible?

If one of the major challenges is to increase crop yields on available arable land, we must address the question of increased land productivity. To date most genetic transformation research has been directed at resistance to insects, tolerance to herbicides, and quality traits such as crop storage life. Relatively greater success can be achieved in these traits because they are often under simple genetic control, i.e., one or a small number of genes control the expression of this characteristic of the plants. When we start breeding for increased yields, we learn quickly that this is dependent on complex inheritance patterns; yield is determined by many genes and their interactions in the plant, as well as their interactions with the surrounding environment and growth conditions. Thus it is not unexpected that yield is more difficult to influence through changes in one or a few genes. New techniques in biotechnology have made minimal contributions to increasing yield potential of major food crops, where traditional plant breeding methods have already moved yields onto a high plateau near the physiological potential of these species. Where yield advances have been made in crops, they are due to removal of a single yield-limiting factor such as resistance to a major pest problem. Biotechnology is not a panacea for increasing yields.

Should the U.S. Sustain the World's Food Supply?

Several questions must be asked that relate to this large issue of U.S. contributions to global food supply: Can the U.S. continue to export food for the long term? What is the long-term cost of this export of food? Who in the U.S. and elsewhere benefit from exports?

The U.S. currently contributes more than any other single country to total global trade in basic grains and legumes. The Chicago Board of Trade essentially sets the world market

price for most commodities. This export potential is based on a large reserve of fertile land and high level of capitalization in agriculture that reduces labor costs to a minimum. WorldWatch Institute estimates that we currently have about 1.8 acres per person of productive farmland in the U.S. With current rates of population growth from births and immigration and farmland loss to urbanization, this will be reduced to 1.2 acres per person within one generation, by 2020. Including projections of increased production due to better science and technology, by 2020 this land area will be sufficient to support our own population at the current standard of living with no exports of food. Extrapolating another generation into the future, by 2050 there will be 0.6 acres per person--only half the land needed to support our own population. Our potential for export of food in the future must be examined carefully.

The long-term cost of the current high levels of production must be evaluated in terms of soil and air quality, use of non-renewable natural resources, preservation of the production potential, and incentives to farm. We still experience serious erosion of soil and nutrients from agricultural lands, in spite of major advances in soil management. Agriculture is highly dependent on fossil fuels and other materials for which we have few viable alternatives with today's technology. Cumulative losses of soil and other natural resources soon put us in a tenuous situation for producing enough food for our own country, even without exports to others. And the U.S. has yet to design a farming and food policy that keeps people on the land and encourages new farmers to get involved. Land and resource consolidation creates a large, non-involved, minimum-wage class of farm workers with little equity in the process or long-term commitment to conservation for the future.

Current beneficiaries of the food export industry include the major multinational food companies, large chemical and biotechnology corporations, and other suppliers of inputs and services to this industry. Farmers increasingly play an important but minor role in a business where contracts specify crops and technologies, and decision making moves from the manager at the field and family level to that of the owners. Many farmers view biotechnology advances as further locking them into this industrial mode of farming, and see the new seed technologies as one more incentive to homogenization and consolidation in farming. An export-based agriculture and global food system are insensitive to local needs and concerns, and there is further disconnect between people and their food supply. In recipient countries, there is added insecurity with increased dependence on food imports. A viable goal for most countries should be a high degree of self-reliance in food, while still finding a logical level of participation in the global trade system. In many food import situations, there are reduced incentives for local farmers and food processors who cannot compete with the efficiency of larger producers. Classical economics suggests that the market will sort this out. It is difficult to convince a hungry family in the Third World that the global economy will somehow take care of them.

Because of the many unresolved issues in how to best sustain global food production, we need to take a creative approach to development and rational use of technologies to increase both productivity in agriculture and people's access to food. There is little evidence that new advances in biotechnology will provide higher yields, nor reverse the

global consolidation of resources that will further undermine the well-being of the poor. Most analysts suggest that these technologies will only accelerate the forces that separate the "haves" from the "have nots."

Submitted by Charles Francis

CSAS Issues Volumes 10 and 11

Small Farming Systems for the Midwest and Reintegrating Agriculture and Community in the Midwest is the tenth in the series, Extension and Education Materials for Sustainable Agriculture, published by the Center for Sustainable Agricultural Systems (CSAS). The 166-page volume, edited by Richard Olson and Lisa Bauer, contains the proceedings of a 20-session seminar series held Fall 1998 and Spring 1999 at the University of Nebraska-Lincoln.

The series was designed to showcase farmers and other participants in the food system who are successfully pursuing local, equitable, and sustainable strategies. The credibility of these alternatives comes from their successful implementation in the real world.

The Fall 1998 series titled "Small Farming Systems for the Midwest" examined alternative farming systems that are able to remain economically viable without becoming large. Farmers from five states described successful systems including market gardens, agroforestry, diversified crop/livestock, and even a winery--perhaps the ultimate on-farm value-added enterprise.

The Spring 1999 series, "Reintegrating Agriculture and Community in the Midwest," explored approaches to providing a more supportive environment for small farms through the relocalization of agriculture and the development of stronger ties between agriculture

and the community. A successful local food system has to be a partnership between urban and rural, producer and consumer. Community Supported Agriculture, farmers' markets, urban gardens, and other mechanisms for developing partnerships are described by those who have worked with them. Other topics include strategies for preserving farmland from urban sprawl, and legal issues in direct farm marketing.

Note: Information on ordering videos of the seminars is available at <http://www.ianr.unl.edu/ianr/csas/majorsem.htm>.

Also edited by Richard Olson is Volume 11, *Urbanization of Rural Landscapes: Syllabus and Teaching Materials from a University Course*. The 335-page volume describes a multi-disciplinary course, Urbanization of Rural Landscapes, developed and taught at the University of Nebraska-Lincoln (UNL) this past spring. The course was designed so that students would be able to:

- describe the major factors influencing land use decisions in the U.S.;
- describe the patterns and consequences of land conversion in the US.;
- identify alternatives to sprawl and other typical development patterns;
- access internet and other sources of information on land use policy and farmland preservation;
- demonstrate a familiarity with land use planning tools, policies, and procedures;
- describe trends in urbanization and land use in the Lincoln/Omaha area;
- participate in and contribute to community debates on land use issues.

The book contains the course syllabus and associated teaching materials including exercises, exams, selected readings, and references. It is organized chronologically with the materials grouped by week. Each section begins with a brief overview of themes and objectives for the week, and a description of the materials presented in the section. It provides useful ideas to instructors who want to design a course on this topic or modify an existing course. Also, the reference materials may be of value to people interested in farmland and open-space preservation and land use issues.

Chapter contents of Volumes 10 and 11 as well as information on other publications of the CSAS can be found at <http://www.ianr.unl.edu/ianr/csas/reports.htm>.

To order, send a check payable to the University of Nebraska for US\$10.00 per volume (note which volume(s) you are ordering) to: Center for Sustainable Agricultural Systems, University of Nebraska, PO Box 830949, Lincoln NE 68583-0949. (Price includes s&h in US; for air book rate to Canada, add \$5; air rate to other countries, check with the CSAS office--this applies to all volumes in the series.) For questions, contact the CSAS office, 402-472-2056, csas003@unlvm.unl.edu.

SARE Marketing Conference in Lincoln This November

The North Central Region Sustainable Agriculture Research and Education (SARE) program is offering a hands-on alternative marketing conference, "Developing Alternative Agricultural Marketing Skills for the New Millennium," November 19-20, 1999, in Lincoln, Nebraska. Producers, educators, nonprofit groups, retail and wholesale food representatives, food processors, restauranteurs, and general consumers will share information on making more direct connections between farm gates and dinner plates to support healthier people, farms and communities.

Two keynote speakers are Kansas rancher Diana Endicott, who direct markets her cooperatively produced "natural beef" to Kansas City grocery stores, and Wisconsin farmer Richard DeWilde, who sells horticultural products through community-supported

agriculture, farmers' markets, and other high-value, innovative marketing avenues. The conference will also showcase innovative alternative marketing strategies through workshops and poster and display sessions. Registration fee includes a legal guide for direct farm marketing by Neil Hamilton--who will also conduct a workshop on this topic, and a marketing resource notebook.

For details on the program, registration, exhibiting, co-sponsoring, or travel scholarships for farmers, contact Lisa Bauer at 402-472-0265, lbauer1@unl.edu. The Web site will be updated as more information becomes available, <http://www.unl.edu/conted/acpp/sare>.

September 10 is Deadline for NCR SARE Preproposals

The USDA's North Central Region Sustainable Agriculture Research and Education program is calling for innovative researchers, educators, institutions and organizations to apply for competitive grants that will boost producers' profits, protect the environment and support healthy communities. Approximately \$1.3 million will be available in 2000 to fund creative projects addressing long-term enhancement of food and fiber systems in the 12-state

region. Applications are available by contacting the NCR SARE office at 402-472-7081, ncrsare@unl.edu, <http://www.sare.org/ncrsare>.

Voluntary Program Will Boost Organic Exports

The USDA's Agricultural Marketing Service (AMS) has established a voluntary, fee-for-service program to verify that organic certification agencies in the United States comply with the requirements of the International Organization for Standardization, facilitating exports of U.S. organic agricultural products to the European Union. Effective in June, the program will verify that state and private organic certifying agencies are operating third-party certification systems in a consistent and reliable manner, enabling their acceptance on an international basis. The new program does not provide for national standards governing the marketing of organically produced agricultural commodities or products, and differs substantially from the proposed National Organic Program.

To be assessed under this program, an organic certifying agency would submit an application requesting such assessment from AMS and also submit to AMS for review and evaluation, a manual documenting the organic certifying agency's quality system and certification procedures used to certify organic producers and handlers. There are

currently 11 state and 33 private organic certifying agencies providing certification for organic agricultural products in the United States.

The rule announcing the program was published in the Federal Register on June 10 and is available on the Internet at <http://www.access.gpo.gov/nara> in the Federal Register for that date, under "Program To Assess Organic Certifying Agencies."

Source: *Alternative Agriculture News*, July 1999, published by the Wallace Institute.

Merrigan to Head USDA's Agricultural Marketing Service

Kathleen Merrigan, the Wallace Institute's senior policy analyst for the past five years, is the new administrator of the USDA's Agricultural Marketing Service. Merrigan was formerly an aide to Sen. Patrick Leahy (D-VT) when he served as chairman of the Senate Agriculture Committee. She has been a member of the National Organic Standards Board since 1993.

"Same agenda, different location," said Merrigan. "This is a great opportunity to go back inside government and work with an agency responsible for many of the issues at the forefront of sustainable agriculture, notably the new organic standards, farmers markets, farmers' cooperatives, mandatory price reporting, and pesticide data collection."

Source: *Alternative Agriculture News*, June 1999, published by the Wallace Institute.

Thanks and Farewell, Glen

Glen Vollmar, CSAS Interim Director, officially retired June 30 (although we'll see him on campus two days a week this year). Thanks to Glen for his contributions this past year! Charles Francis returned from his sabbatic in June and has resumed the CSAS Director position.

Nominations Sought for Steward of the Land Award

American Farmland Trust seeks nominations for the 2000 Steward of the Land Award, given annually to the American farmer or farm family who demonstrates outstanding land stewardship and leadership at the national, state, and local levels. The winner will be

presented with the award early next year and will receive a \$10,000 cash stipend. Nominations must be received by mail or fax by Monday, November 1. For nomination kits and more information, contact Matthew Snyder or Robyn Miller at AFT, 202-331-7300 ext. 3044, <http://www.farmland.org>.

Nebraska Legislative Bills Study Management and Help Beginning Farmers/Ranchers

The following two bills were passed by the 96th Nebraska Legislature.

LB 730 creates an Agricultural Structure Assessment Task Force. The task force will study: the types and management forms of Nebraska agricultural operations; past, present and future trends of ownership of land, equipment and capital in production agriculture; and agricultural product market dynamics. The objective of the task force is to recommend legislation that will help to achieve a balance among various types of agricultural entities.

LB 630 allows a credit against state income tax liability for an owner of agricultural land, livestock, buildings or machinery who rents those assets for three years to a qualified beginning farmer or rancher. The credit, which begins in 2001, will be equal to 5% of the gross rental income on the rental agreement. The credit will be refundable, which means that if the credit were larger than the taxpayer's total tax liability, the taxpayer would receive the difference. A seven-member board will oversee the program.

Canada Introduces National Standard for Organic Agriculture

On June 29 the Government of Canada unveiled a new National Standard of Canada for Organic Agriculture--a step that will clarify what the "organic" in organic agriculture means. The standard outlines principles for organic agriculture that endorse production and management practices that contribute to the quality and sustainability of the environment and ensure the ethical treatment of livestock. Among its provisions, the standard:

- prohibits use of ionizing radiation in the preservation of food;
- prohibits use of genetically engineered or modified organisms;
- encourages maximum use of recycling;
- encourages maximum rotation of crops and promotion of biodiversity.

To see an abstract or to order a copy of the National Standard of Canada for Organic Agriculture, which will be listed as CAN/CGSB-32.310, see <http://www.pwgsc.gc.ca/cgsb>.

Resources

The Economics of Organic Grain and Soybean Production in the Midwestern United States. \$15. New study shows farm profits from organic cropping systems can equal or exceed profits from conventional rotations in the Midwest. Wallace Institute, 9200 Edmonston Rd., #117, Greenbelt, MD 20770-1551, 301-441-8777, hawiaa@access.digex.net. Also available online at the Institute's Web site, <http://www.hawiaa.org>.

The Natural Foods Market: A National Survey of Strategies for Growth, Executive Summary, April 1999. Free. Results from over 300 interviews of food industry businesses, including farmers, manufacturers, wholesalers and retail supermarkets. Analyzes current trends and major obstacles as well as successful business strategies in natural foods market. Full report US\$50 for non-profits and \$150 for businesses. Wallace Institute (see above).

Swine Sourcebook: Alternatives for Pork Production. \$17.50 + \$4 s&h. Comprehensive guide for sustainable swine production, incl. hoop structures, Swedish deep bedding, pasture systems, low antibiotic use, and marketing. U. of Minnesota College of Agriculture, Distribution Center, 20 Coffee Hall, 1420 Eckles Ave., St. Paul, MN 55108-6069, 800-876-8636.

Marketing Sustainable Agriculture: Case Studies and Analysis from Europe. \$15. Highlights successful marketing initiatives and analyzes why they are successful. Based on tour of six countries and symposium in Fall 1998. Institute for Agriculture and Trade Policy, 2105 First Ave. South, Minneapolis, MN 55404, 612-870-3411, vtran@iatp.org.

Nebraska Rural Response Hotline. Provides financial, legal, mediation, and counseling services to Nebraska farm, ranch, and rural residents. 1-800-464-0258.

Reclaiming our Rural Heritage: A Time to Act. \$10. Examines changing structures of farming, livestock production, and rural community life. Catholic Charities, Attn: Marilyn Murphy, Box 1342, Sioux City, IA 51102, 712-255-4346.

The USDA National Agroforestry Center has free resource materials describing how agroforestry is of value in educational programs addressing issues related to agricultural and food systems sustainability. One example is "Agroforestry for Farms and Ranches," a 26-page technical note describing the use of tree and shrub practices in agricultural land use settings. A new series of "Working Trees" brochures has also been released for:

Agriculture, Livestock, Wildlife, and Communities. To obtain more information about the NAC or to order publications, see <http://www.unl.edu/nac> or contact Nancy Hammond, National Agroforestry Center, East Campus-UNL, Lincoln, NE 68583-0822, 402-437-5178, ext 24.

New Web site dedicated to agricultural applications of biotechnology,
<http://www.biotech-info.net>.

Coming Events

Contact CSAS office for more information.

1999

Aug. 7 - Specialty Crops Field Day, Lincoln, NE

Aug. 24 - Alternative Ag Expo: Diverse Systems that Work, South Sioux City, NE

Oct. 12-15 - Second National Small Farm Conference: Building Partnerships for the 21st Century, St. Louis, MO, <http://www.luce.lincolnu.edu/nsfc/>

Oct. 20-23 - North American Chapter Association for Farming Systems Research and Extension (AFSR/E) Biennial Meeting - Sustaining Agriculture in the 21st Century: Thinking "Outside the Box," Guelph, Ontario, CA, <http://www.oac.uoguelph.ca/FSR/>

Nov. 19-20 - Developing Agricultural Marketing Skills for the New Millennium, Lincoln, NE

2000

Jan. 5-6 - Mid-America Fruit Growers Conference, St. Joseph, MO

Jan. 7-8 - Great Plains Regional Vegetable Conference, St. Joseph, MO

For additional events, see:

http://www.sare.org/wreg/view_notice_adm.pl

<http://www.agnic.org/mtg/>

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