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July-August 1994 CSAS Newsletter

The Center for Sustainable Agricultural Systems (CSAS) in the Institute of Agriculture and Natural Resources (IANR) at the University of Nebraska-Lincoln (UNL) is an interdisciplinary center formed in 1991 for the purpose of bringing together people and resources to promote an agriculture that is efficient, competitive, profitable, environmentally and socially sustainable for the indefinite future. Electronic versions of the CSAS bimonthly newsletter are sent to SANET, PENPages, and the internal IANRNEWS 10-14 days before those on our mailing list receive their hard copy. They are also available along with other sustainable ag information on the gopher: IANRVM.UNL.EDU. (Note: The electronic version is not sent to individual e-mail addresses.) To be added to the "hard copy" newsletter mailing list, or for questions or comments, contact the newsletter editor, Pam Murray, Coordinator, Center for Sustainable Agricultural Systems, 221 Keim Hall, University of Nebraska, Lincoln, NE 68583-0949, 402-472-2056, e-mail csas001@unlvm.unl.edu.

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CSAS RECEIVES SARE REGIONAL TRAINING GRANT

The University of Nebraska-Lincoln (UNL) Center for Sustainable Agricultural Systems (CSAS) has received a grant from the North Central Region (NCR) Sustainable Research and Education (SARE) Program to conduct regional training (C. Francis, UNL and C. Edwards, Ohio State U., project leaders). A joint North Dakota-South Dakota State U. project and portions of a Michigan State University (MSU) proposal were also funded under this regional umbrella project, which is being coordinated by MSU's Dr. George Bird. Funds for this activity were authorized in Chapter 3 of the 1990 farm bill (FACTA), which specifies that all Cooperative Extension agricultural agents (and other agricultural professionals such as SCS, ASCS, certified crop consultants) will be trained in sustainable agriculture techniques and systems by 1995. The North Central Region (12 states) is one of four similarly organized regions.

SARE/ACE PREPROPOSALS DUE SEPT. 16

The Administrative Council for the NCR SARE Program has issued its call for preproposals for research, education and demonstration projects in 1995, and has identified the following as priority issues:

SARE -- value-added regional food systems; sustainable livestock systems; integration of food, environmental and agricultural policy; alternative weed management systems; farmer based/initiated networks; system approaches to manure management for plants, animals and the environment.

ACE -- environmentally sensitive areas including riparian protection/enhancement, wetlands protection/enhancement, surface and groundwater protection, and terrestrial avian or aquatic habitat; environmentally sound management practices including alternative uses of CRP lands, non-chemical pest management, pesticide use reduction, on-farm composting, manure management, and nutrient management.

In addition, the Council will be issuing a special call for proposals this fall for projects addressing quality of life and structure of agriculture. For more information, contact the SARE Program office, 402-472-7081.

If you wish to submit a proposal for an interdisciplinary project through the CSAS, contact Charles Francis or Pam Murray. We can offer assistance with conceptualization, putting together a project team, proposal development and project administration.

ENVIRONMENTAL ETHICS AND AGRICULTURE IN NEBRASKA

The following is a summary of a paper by Charles Flowerday, Editor, Conservation and Survey Division, UNL. For a copy of the complete paper contact the CSAS office.

* * *

For the purposes of discovery, environmental ethics can be distilled into two difficult sets of questions about people and species that cannot speak for themselves. This is not all of environmental ethics but it sums up a large part of the most significant issues. These questions are: Do we have obligations to future generations? If so, why and what are they? Do we have obligations to other species? And if so, why and what are they? These questions oversimplify but they provide us with interesting points of departure. They also have implications for the ethics of agricultural production.

Some ethicists have argued that obligations to future generations are moot because, even if we can assume they will exist, we don't know anything about them, so we can't provide for their interests. The fundamental counter-argument here is that all interests are future interests, even in this generation, and we have to try to prepare for them. Like cleaning up our campsite, we should leave the planet in no worse shape than the way we found it. These values are nearly unassailable in the abstract but often are conveniently jettisoned once we discover just how expensive it might be to adhere to them and contemplate the prospect of our business or farm going broke trying to do so. At this point the present generation often appeals to future advancements in technology to be determined later by others.

The consideration of other species leads to even more perplexing issues. It involves deciding what forms of life besides ourselves deserve moral consideration. Some arguments for preservation of nonhuman species involve the instrumental value--the use value--of other species. For example, arguments for preservation of the rain forests often involve pointing out that up to a fourth of all drugs stem from plant species, many of them from rain forests. An economic argument with implications for environmental ethics, particularly with regard to extinction of species, is that closing off future options is less desirable than keeping those options open. This is because time fosters the fruition of certain actions by offering us more information than we currently have about the consequences of our actions. Actions that preserve the most flexibility possible are to be prized economically. Another pragmatic argument has to do with the potential to eliminate enough species that we begin to destabilize an ecosystem. Biological diversity is generally conceded to confer greater stability on an ecosystem.

Finally, however, most environmental ethicists feel compelled to discuss the intrinsic value of other species. Some ethicists seek to extend moral consideration to nonhuman animals based on the fact that while animals may not be able to reason, they can suffer. Therefore, they deserve moral consideration. By extension, some theorists reason, if a thing has a "good of its own," it deserves respect. If it engages in self-organizing, self-maintaining, goal-oriented behavior, it deserves respect. In other words, plants count too. We may never settle the question of how much. This school of thought sometimes runs into some difficulties explaining to the unconverted why its values are appropriate. Stopping short of abandoning this quest, these theorists often appeal to "richness" as a value, diversity being more pleasurable, interesting, satisfying and probably more stable than its lack, and to "otherness" as a metaphysical reality inspiring awe and humility.

Another school of thought seeks ethical primacy for ecosystems; it places less emphasis on individuals and more on populations and the capacity of an ecosystem to achieve overall homeostatic balance through natural selection. Aldo Leopold is often seen as the founder of this school of thought. Leopold coined the term "land ethic" and interpreted it to mean an ethical posture toward all elements of the ecosystem, even its inorganic parts. These theorists believe that the ecosystem is the fundamental unit of value, survival and study in natural science. Populations interact in ways that are loosely predictive and confer a cornucopia of values on the ecosystem itself, including its inanimate parts. The system has value because it is a "value-producer" and "value-holder."

Sustainable agriculture shows great promise as an agricultural production system that is relatively respectful of the rights of future generations and other species. Minimizing application of synthetic chemicals enhances soil microbial life and preserves water quality. In addition, minimum tillage and rotating in cover crops provide greater habitat and cover for wildlife. Soil and water conservation and maintenance of water quality, which provide benefits to future generations, are all key goals in any sustainable farming system. While it involves management-intensive, site-specific farming, some specific

indexes for measuring the success of sustainable agriculture in minimizing adverse effects on the environment are: containment of externalities (nonpoint pollution); net energy balance; short-term costs and benefits relative to long-term costs and benefits; net hydrologic balance; soil nutrients and tilth; soil microbial health; ratio of soil erosion to soil formation; land equity position of owner/operator; level of chemical vs. biological pest control; dynamics of populations and heterogeneity of habitat.

Submitted by Charles Flowerday

REVIEW OF "FLAT WATER: A HISTORY OF NEBRASKA AND IT'S WATER"

A definitive book on Nebraska and its water resources, "Flat Water" brings together maps, diagrams, historical records, and even cartoons to illustrate the importance of this vital resource. Completely edited and assembled by Charles Flowerday and Robert Kuzelka with a team of more than 20 authors, this is the most current and complete reference written in popular form that introduces Nebraska's water to a broad audience. It is a valuable introduction for new immigrants as well as a refresher course for knowledgeable native Nebraskans.

Native Americans called the Platte River a "broad, flat water," and it represented a major east-west travel route across the territory. Many villages were located along the Platte and other major streams. People lived with the land and prairie the way it was, causing little major change in the landscape. "Life in the prairie depended on water." The name "Nebraska" comes from the Native American name for the Platte.

An excellent chapter by Flowerday describes the pre-history of native peoples in the region, probably living on the plains as early as 35,000 B.C. In Nebraska the earliest artifacts found so far date about 10,000 years ago, about the time organized agriculture began in many parts of the world. Early nomadic hunters and gatherers found abundant game on the plains and in the rivers. This chapter traces the movement of native peoples through the plains, out to other areas, and back to the area as rainfall patterns changed. More detail is given on native cultures in the past two millennia.

Using early photos, diaries, newspapers, and other written accounts, the succeeding authors give much more detail on the development of irrigation and human settlements throughout Nebraska. Generally presented in a historical framework, the chapters deal with hydrology and climate (complete with detailed maps), development of agriculture and industry based on water resources, a new technology that evolved to what we know today as center pivot irrigation, and the economics and policy dimensions of water. True to its source at the University of Nebraska, the book highlights research and education activities surrounding water use, from early research on crop response to water to the current annual Groundwater Festival.

Water is a resource with unique importance in Nebraska. This readable book is spiced with personal profiles of many who figured prominently in the development of irrigation and water use. Conservation of resources and multiple uses of water figure ever more prominently, as Nebraskans grapple with the challenges of how to manage this now scarce resource. "Flat Water" provides

a current perspective on one special dimension of this part of prairie. From flooding to nitrate contamination, from wildlife to municipal water supplies, this book brings opinions and facts together in a comprehensive treatise on Nebraska's water resources and topography. (See Resources to order.)

Submitted by Charles Francis

AGROFORESTRY AND SUSTAINABLE SYSTEMS SYMPOSIUM

An emerging awareness of agroforestry as an integral part of sustainable land use systems was evident at the recent symposium in Fort Collins, Colorado. The three-day event featured talks on sustainable practices as well as system-wide evaluation. Dr. Thad Box of New Mexico traced the history of land use in the U.S. from the European invasion, through stages of exploitation and preservation, to the current focus on restoration and broad environmental concerns. He explored the importance of community decisions on land use, and the need to balance the needs of all with preserving private property rights. Box concluded that a land ethic will provide the basis for future directions.

Numerous papers described riparian filter strips, multiple purpose windbreaks, alternative perennial and annual crops, and working trees in both urban and rural ecosystems. There was more focus on individual practices and component technology than on systems, although a recurring theme was the over-riding importance of interdisciplinary teams and future systems research and education.

Specialists from the U.S. Forest Service, Soil Conservation Service and UNL were prominent, with 11 authors of presented papers and 12 authors on posters. The USFS Center for Semiarid Agroforestry and the CSAS were among 52 co-sponsors of the activity attended by about 120 specialists from across the U.S. Proceedings will be available at a later date.

Submitted by Charles Francis

SEMINAR ANNOUNCEMENT

Dr. Paul Thompson, Director of The Center for Biotechnology Policy and Ethics at Texas A&M University, will present two open seminars at the East Campus Union on October 4: (1) 10:30 - "Recombinant bovine somatotropin: the ethical issues," and (2) 3:30 - "What's holistic about holism?"

NEBRASKA PROGRAM AIMS TO ENHANCE BIODIVERSITY

A new program of the National Biological Survey will use geographic information systems to analyze Nebraska's critical habitat with the aim of achieving greater conservation of biological diversity. The three-year Nebraska GAP Analysis Program being initiated this summer will be cooperatively managed by James Merchant, associate director of the UNL Center for Advanced Land Management Information Technologies (CALMIT) and Dennis Jelinski of the UNL Forestry, Fisheries and Wildlife Department. Objectives are to map existing statewide vegetation and other land cover, determine present distributions of native

animal species, determine the extent and importance of places of native species richness, compare distributions of vegetation communities with existing land uses, compare places of species richness with existing land uses, and provide an objective basis for statewide and national biodiversity management strategy. Maps of species-rich areas, individual species of concern and vegetation types will be overlaid on maps of land ownership and land use--showing where conservation efforts need to be targeted. For details contact James Merchant at 402-472-7531.

Source: "Resource News," Summer 1994, Conservation and Survey Div., Institute of Agriculture and Natural Resources, UNL.

BEGINNING FARMER PROGRAMS IN NE AND IA

The Nebraska Beginning Farmer Sustainable Agriculture Project is co-sponsored by the Center for Rural Affairs, University of Nebraska-Lincoln, and Nebraska Sustainable Agriculture Society. The three-year project helps farmers develop and test sustainable strategies to get started. Two companion programs are: (1) Sustainable Agriculture Mentor Program which connects transitional or beginning farmers with farmers successfully using sustainable practices, and (2) Land Link which introduces young farmers to near-retirement farmers. Contacts: (1) Lowell Schroeder, 402-439-5398; (2) Wyatt Fraas, 402-254-6893. (See Resources for Beginning Farmer report.)

The Iowa Legislature has just established a "Beginning Farmer Center" with a first-year appropriation of $100,000. The center, which is part of the state's extension service, is required to develop and coordinate beginning farmer education programs and provide services that facilitate transfer of farm operations from retiring to beginning farmers. Contact: John Baker, 800-747-5465.

AGRONOMY COMMITTED TO SUSTAINABLE SYSTEMS

The following are comments by the head of the UNL Agronomy Department.

* * *

Ninety-six percent of Nebraska's land is used in production agriculture, either as row crops or as forage and range. The natural ecosystem of Nebraska is prairie grassland which is used predominantly for livestock production. Hence, agriculture is the primary land steward for Nebraska and agriculturalists are the impact ecologists.

Rarely has agriculture been given credit for its efforts in natural resource management and ecology. The lack of credit is often due to poor communications and not to different goals between agricultural and non-agricultural groups. The irrigators in the Platte River Valley and Omaha residents both have an interest in maintaining the quality of our aquifers. Since one out of every two jobs in Nebraska is agriculturally related, both groups also have an interest in maintaining the economic health of agriculture. This is why the UNL Agronomy Department has and will continue to have a strong emphasis on agricultural profitability and sustainability which includes water and environmental quality and natural resource management and

conservation. No system is sustainable if it is not profitable.

We are increasing our efforts and understanding of complex systems. In partnership with other academic units and with private industry, we are learning how to measure air quality, water quality, soil quality, plant health, and food quality. The ability to measure is critical to our developing sustainable agricultural systems. However, the most difficult part of our research, teaching, and extension efforts will be to develop and communicate integrated systems. Science is remarkably successful at breaking a complex problem into smaller ones that can be solved. However, the true test of our skills will be to synthesize what we have learned from the individual experiments into an agricultural system that conserves our natural resources and quality of life while providing increasingly profitable farming or ranching in a globally competitive market.

Source: Remarks by Stephen Baenziger, Head of UNL Agronomy Dept., in Spring 1994 issue of the "UN-L Agronomy Newsletter."

GROUPS PRIORITIZE FARM BILL TOPICS

Over 200 diverse organizations will launch a "Campaign for Sustainable Agriculture" to influence the 1995 farm bill via press events, community meetings, action alerts, letters and visits to Congress. Heading up this effort are the National Sustainable Agriculture Coordinating Council (NSAAC) and regional Sustainable Agriculture Working Groups (SAWGs). At a national meeting earlier this year 20 campaign topics were identified as priorities. For a list of the topics or to become involved, contact Amy Little, NSAAC, 32 N. Church St., Goshen, NY 10924, 914-294,0633, or your regional SAWG organizer.

BIOLOGICAL CONTROL OF INSECTS CONFERENCE

A conference on biological control of insects will be held Nov. 1-3 in Lincoln. Co-sponsored by the CSAS and the North Central Regional Research Committee for Biological Control of Pest Arthropods, the conference will focus on the biology, identification and use of different natural enemies in insect management. Breakout sessions will address the specifics of biological control in corn, grain sorghum, alfalfa, turf and ornamentals, livestock and horticultural crops. Live and preserved natural enemies will be available in a laboratory session. Registration is $95 ($25 for students) and will include a comprehensive biological control publication. Contact: Nancy Fields, conference coordinator, 402-472-2844.

ON-LINE DISSEMINATION OF HUMAN DIMENSIONS RESEARCH

To better understand human interactions in global environmental change, both researchers and policy makers need a faster means to circulate research papers and reports and to promote interdisciplinary interactions. The Consortium for International Earth Science Information Network (CIESIN) Human Dimensions Kiosk available on Internet contains: unpublished scholarly papers for which feedback or comment from scientific colleagues is desirable; papers or reports in less accessible

publications, working papers, background information or data; and comments on material in the CIESIN Kiosk. Access is via FTP, E-mail, Gopher, or World Wide Web.

CIESIN is an independent, publicly funded consortium of six research universities and a research institute. Its mission is to provide access to and enhance use of environmental data and information worldwide.

Send e-mail message to learn more about CIESIN (ciesin.info@ciesin.org) or the Kiosk service (kiosk@ciesin.org), or call 517-797-2727.

STUDY FINDS SUSTAINABLE FARMS MORE PROFITABLE

A new study by the Minnesota Department of Agriculture and the Land Stewardship Project found that four farmers in southern Minnesota who use sustainable methods, such as chemical-free crop production and management intensive livestock grazing, are more profitable than their neighbors. Although the average size of the four farms was less than the average for the area (282 acres vs 451), profit margins were 8-47% higher. One pork production enterprise that produces a fraction of the number of pigs of the average operation was three times as profitable. (See Resources to order the study.)

DID YOU KNOW...

USDA research shows that exports have a greater impact on growth of rural employment than on general employment in the U.S.

USDA survey shows U.S. cropland shrank by about 39 million acres, or 9.2%, in the 10-year period ending in 1992.

SCS says CRP enrollments will have contributed to a 66% reduction in soil erosion on the nation's most highly erodible land by the end of 1994--dropping to 6 tons/acre/year from 17.5 in 1985. Keith Collins, asst. secy. of ag. for economics, predicted 1/2 to 1/3 of currently enrolled CRP acres will return to production when contracts expire, resulting in 15 million more acres planted to major crops.

University of Georgia professor Dr. H. Ronald Pulliam was named director of the National Biological Survey of the U.S. Dept. of Interior, which began operations Oct. 1, 1993.

Fred Kirschenmann of North Dakota says 90% of all foods in the supermarket are derived from four raw foods: corn, soybeans, rice and wheat.

Under the Great Plains Conservation Program, USDA-SCS shares 50-80% of the cost of helping farmers stop soil erosion.

The British government has tripled funds allocated to sustainable agriculture demonstration projects in the interests of reducing pesticide use. The chemical industry is providing an additional 12 million pounds.

Today's farmers capture an average of 26 cents of every dollar

spent on food at the store, compared to 37 cents in 1980.

The PA Ag Dept. and Penn State U. have a new 800 service to help encourage IPM and reduce pesticide use by up to 50%.

RESOURCES

"Flat Water: A History of Nebraska and It's Water," $20 + $1.50 s&h (add 5% tax for NE residents), Conservation & Survey Division, University of Nebraska, 113 Nebraska Hall, Lincoln, NE 68588-0517, 402-472-3471.

"An Agriculture That Makes Sense: Profitability of Four Sustainable Farms in Minnesota," $5 + $2.90 s&h (add 6.5% tax for MN residents), Land Stewardship Project, 14758 Ostlund Trail North, Marine on St. Croix, MN 55047, 612-433-2770.

"In Good Tilth," $15/yr., aims to educate consumers, farmers, gardeners and politicians about the benefits of organic production. Oregon Tilth, PO Box 3588, Portland, OR 97208, 503-285-8279.

"Best Management Practices for Nitrogen Fertilizer and Water Use in Irrigated Agriculture," 30-min. video with study guide, $20, California Dept. of Food and Ag., 1220 N St., Rm A-372, Sacramento, CA 95814, 916-643-5340.

"Financing Alternative Agriculture: Model State Initiatives for Financing the Conversion to Alternative Agricultural Practices," Center for Policy Alternatives, 1875 Connecticut Ave. NW, Suite 710, Washington, DC 20009, 202-387-6030.

"Washed, Peeled--Contaminated," $10 + $3 s&h, Environmental Working Group, 1718 Connecticut Ave., NW, #600, Washington, DC 20009, 202-667-6982.

"International Workshop on Sustainable Land Management for the 21st Century," proceedings of June 1993 workshop, Cindy LaValley, International Workshop Organizing Committee, University of Lethbridge, 4401 University Drive, Lethbridge, Alberta, Canada T1K3M4, 403-329-2244.

"Profitable Ideas for the Small Farm," reprint from "Growing for Market," $10, Fairplain Publications, PO Box 3747, Lawrence, KS 66046, 913-841-2559; 12-issue subscription to "Growing for Market" is $26/yr.

"Beginning Farmer Sustainable Agriculture Project Interim Report," $4 and "Competition and the Livestock Market," $5 (add 5% tax for NE residents), Center for Rural Affairs, PO Box 736, Hartington, NE 68739, 402-254-6893.

"Worm Digest," quarterly newsletter about worms and worm composting, $4.50/yr., Worm Digest, Box 544, Eugene, OR 97440-9998.

"Clean Water and Agriculture," education packet, $5, The Minnesota Project, 1885 University Ave. West, #315, St. Paul, MN 55104, 612-645-6159.

"When Conservation Reserve Program Contracts Expire: The Policy Options," proceedings of Soil and Water Conservation Society conference held in Feb. 1994, $25 + $3.50 s&h ((add 5% tax for IA residents), SWCS, 7515 Northeast Ankeny Rd, Ankeny, IA 50021-9764, 515-289-2331.

COMING EVENTS

Contact CSAS office for more information:

Sep. 8 -- Thompson Field Day, Boone, IA.

Sep. 8-9 -- 10th Annual Women In Agriculture Conference, Kearney, NE.

Sep. 18-21 -- Sustainability of Range Livestock Production Systems in the West, Billings, MT.

Sep. 18-21 -- National Public Policy Education Conference, focus to include changing food and ag policy in 1990s, environmental policy issues, and elements of sustainable rural policy, Boise, ID.

Sep. 21-23 -- 14th Annual National Rural Families Conference, Manhattan, KS.

Oct. 4 -- Paul Thompson seminars, UNL campus.

Oct. 12-14 -- Management Intensive Grazing Workshop, Linneus, MO.

Oct. 24-28 - Down to Earth: Practical Applications of Ecological Economics, San Jose, Costa Rica.

Nov. 1-3 - North Central Biological Control of Insects Conference, Lincoln, NE.

Nov. 2 -- Annual meeting of Holistic Resource Management Nebraska Branch, North Platte, NE.

Nov. 18 -- Ag at the Crossroads annual conference, Lincoln, NE.

Dec. 6-7 -- Soil Health: The Basis of Current and Future Production, Decatur, IL.

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