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May-June 1995 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, fax -4104, e-mail: csas001@unlvm.unl.edu.

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WHAT YOU'LL SEE ON THE SUSTAINABLE AG TOUR

The 1995 Sustainable Agriculture Tour on August 17 will begin at 8:00 a.m. at the new Agricultural Research and Development Center headquarters near Mead. At the ARDC participants will see:

- new ARDC headquarters facility that includes an energy efficient, partially earth-sheltered design and passive solar heating, and a developing educational program that integrates agricultural production with environmental concerns and interventions;
- educational microfarm project for undergraduate interns, each of whom manages a small farm for the entire season from planting to product sale, and evaluates the biological, economic, and energy efficiency of diverse cropping and crop/animal systems;
- impacts of grazing crop residues on subsequent crop production, and effects of conventional and ridge tillage on animal gains during winter stalk grazing;
- effects of different planting dates and hybrid maturities on productivity, economic return, and risk of production of corn, soybean, and grain sorghum in the region;

- impacts of windbreaks on vegetable production, with several species planted with and without protection of mature windbreaks;
- composting animal wastes for stabilization of nutrients and reduced costs of handling and application on production fields.

After lunch at the ARDC headquarters, the tour will visit local farms to see:

- a three-year on-farm paired comparison study on profitability of dryland corn vs. dryland grain sorghum, each in rotation with soybeans to document yield differences;
- a farmer who has moved away from a corn/soybean/cattle operation and now grows and direct markets fresh produce including cantaloupe, watermelon, cabbage, sweet corn, tomatoes, zucchini, potatoes, and more;
- one of several nationally-selected sites to participate in a new approach by EPA for granting conditional registration for applying new products, in this case the corn herbicide acetochlor.

Registration: fee of \$7/person covers lunch and handout materials.

Because tour sites are fairly close together, and to keep cost to a minimum, this year it's BYOV (bring your own vehicle); no van or bus service will be provided. We will travel caravan style, and participants are encouraged to car-pool. Those who have not pre-registered may still join us for any or all of the tour, but will not be provided lunch or handout materials. Deadline for receipt of registration fee in the CSAS office is August 14.

CLINTON ADMINISTRATION FARM POLICY

At the April 1995 National Rural Conference in Iowa, President Clinton released a report listing the key principles guiding the Administration's rural and farm policy agenda:

- Maintain the farm economy's foundation through the continuation of simplified commodity programs.
- Expand foreign markets by fully funding GATT-legal export promotion policies.
- Expand rural economic opportunities through the creation of quality jobs that provide a living wage and long-term income stability.
- Streamline conservation programs to make them more flexible and promote land stewardship.
- Ensure a safe food supply through continued pursuit of a science-based food safety system.
- Provide a healthful diet for all Americans by working for the preservation and improvement of food nutrition programs.
- Market the best of American agriculture by reforming and improving the nation's marketing programs.
- Promote sound science for the next century by creating opportunities for federal and private research partnership toward technologies that will improve productivity, solve environmental problems, and create new opportunities.

"I don't believe we ought to destroy the farm support program if we want to keep the family farm." President Clinton, National Rural Conference, April 1995

IN THE SEMINAR SPOTLIGHT:

THE BIOREGENERATIVE LANDSCAPE

What will our communities and agricultural areas look like in the future? Solar and wind energy, capture and infiltration of rainfall into aquifers, restoration of marshes and wetlands? Dr. Robert (Rob) Thayer from the University of California-Davis explored these visions in his April 14 seminar, "The Bioregenerative Landscape." In addition to capture of wind and solar energy, Thayer captured the imaginations of those attending his thoughtful presentations.

A landscape architect who specializes in the integration of nature with human settlement and agriculture, Thayer author of the successful book, "Gray World, Green Heart" (see Resources). He explored the potentials of regenerating housing developments with diverse lawnsapes and wetlands to capture rainfall. The innovative zoning and building codes of Davis provide a model for sustainable development in the 21st Century. Using today's materials and designs that focus on minimizing energy costs, one development incorporated sidewalks for pedestrians and bicycles, and minimal streets and extraneous pavement. A central lake was used to store rain and help infiltration to the ground water. The entire concept was to bring together the community around the issue of resource limitations in the future, while providing adequate comfort today.

Thayer and his students are working in the nearby Yolo County countryside to plan the restoration of minor sloughs or watercourses that were once an important part of the ecology. Tree plantings for windbreaks, planted filter strips along the waterways, and created and connected habitat add to a vision of a biodiverse farming area for the future. Their plans have been studied on the ground, visualized in drawings, and discussed with local farmers and residents in the county. This is the first step in a long-term plan to implement a plan for biodiversity in concert with agricultural productivity in this fertile part of the Sacramento Valley.

Submitted by Charles Francis

BIOPOWER FROM AGRICULTURE

In her seminar "Current Projects and Prospects in Biopower from Agriculture" on April 21, Nancy Cole stressed the need for development of renewable energy sources, including biomass such as poplar trees, prairie grasses, and crop residues. The director of public outreach for the Union of Concerned Scientists in Washington, DC said 85% of energy use in the U.S. is from fossil fuel.

In Nebraska 59% of electricity is from coal and 33% from nuclear plants. Coal mining is not human or environmentally friendly, and nuclear plants are aging quickly and are susceptible to accidents as history has proven.

We need to position ourselves for the future. One way is to build a biopower industry that uses local/regional plants processing locally grown biomass. Benefits of such an infrastructure include:

- increased farmer profits, especially if crops are grown on marginal or reserved lands;
- rural economic development by creating jobs and keeping more energy dollars in communities;
- protection of fragile lands with perennial energy crops that require less chemicals, machinery and labor, and reduce environmental impacts on

- water quality;
- reduced greenhouse gas emissions (closed-loop system burning biomass releases CO₂ but the plants use it up) and low sulfur emissions;
- potential for increased ecosystem diversity.

Nebraska is the only state in which all utility companies are publicly owned, providing excellent opportunity for public influence. Two years ago the Nebraska Citizen Action and the Union of Concerned Scientists initiated the SEED (Sustainable Energy for Economic Development) campaign. Contact our office for more information about these organizations.

Cole was in the area promoting a new book she co-authored, "Renewables are Ready," and was the featured speaker at Earth Day festivities in Omaha, NE.

Notes by Pam Murray

MANAGING WEEDS IN FARMING SYSTEMS

Dr. Rhonda Janke, a sustainable cropping systems agronomist at Kansas State University, presented "A Discussion on Weed Ecology in Low-Input Reduced Tillage Cropping Systems" on April 21. An experiment she directed at the Rodale Institute compared weed management in sustainable and conventional farming systems. Their approach was to study systems within a disciplinary context, such as crop and weed interactions, and within a broader view of social and political parameters, such as environmental impacts and health considerations. Janke stressed that the goal is not total elimination of weeds or chemical use, but weed management.

The Rodale Institute's 330-acre farm has shale-based soils and 42 inches of rain a year. A conversion experiment started in 1981 was changed to a farming systems trial in 1986, with each of 15 treatments in one-acre plots and four replications. During the conversion period, corn was the only crop with reduced yield. Soybean yield was not affected, and small grain yield was at or above county averages.

Since 1991, researchers have continued to improve production practices within the rotations. The low input/sustainable rotation with animals is wheat/clover-corn-soybeans-corn; the low input/sustainable cash grain rotation is wheat/clover-corn-barley/soybeans-wheat/ clover; the conventional cash grain rotation is corn and soybeans. Janke and her team concluded that:

- weed management was more complicated in low input/sustainable systems than with the conventional herbicide strategy;
- weeds are sometimes above the visual threshold, but rarely above the biological threshold;
- weed biomass has not increased for more than ten years even though weeds are setting seed; and
- effective weed management in low input/sustainable systems appears to be a combination of factors and management practices including: corn population density (42,000-65,000/Ha), corn hybrid (95-110 day), number of cultivations (2-6), cultivation schedule and date of planting, cultivator type, skill of operator, crop rotation/previous crop, and weather.

Submitted by Heidi Carter

SUSTAINABLE FAMILIES -- SUSTAINABLE ECONOMIES -- SUSTAINABLE ENVIRONMENTS

The following is an excerpt from a presentation by Shirley Baugher, Chair and Professor of the UNL Department of Family and Consumer Sciences, at the IANR administrative retreat on May 17, 1995. Contact the CSAS for a copy of the complete paper.

Sustainability has become a prominent issue on the global agenda. Underlying the concept of sustainability is intergenerational transfer of resources. Each generation must meet today's needs without incurring debts it cannot repay and without compromising the lives of future generations. A society can incur four kinds of debt:

- 1) financial by borrowing heavily over a long period;
- 2) social by neglecting to invest in human development;
- 3) demographic by permitting unchecked growth in population; and
- 4) environmental by exhausting natural resources or polluting the land, the water or the air.

In any real world situation, the meaning and implications of the concept of sustainability will be subject to countless mitigating factors. A concrete idea of what sustainability means is possible only in context.

If we understand the concept of sustainability and the interdependence of all systems toward that goal, then we recognize the link of social systems to the economy and to the environment. There are obviously linkages among the ecological, biological, resource, and social goals that address the basic economic goal in the community.

In the 1990 census, Nebraska had a population of 1.59 million people, with 27% under the age of 18. Using a straight-line projection to 2005, 14% of our population will be under the age of 18. Nebraska is clearly an aging state. In 1990, 93% of the population was European American; in 2005 this will decrease to 78%. The migration from rural to urban areas is projected to continue. Eleven percent of Nebraska's population lives in poverty. Nebraska is especially vulnerable because it is considered one of seven states with the highest dependency rate of children and older adults; we have fewer people contributing to the economy of the state than we do individuals dependent upon the contributions of others.

What are the issues for individuals, families and communities in the next decade?

- Sustainable families: the interdependent concept of economic, social and physical attributes.
- Welfare reform: the issues of welfare reform include job preparation training, parenting and nutrition education, financial management and employer education.
- Health: 24% of households spend over half of their annual income on health care; consumer health policy is a critical niche for us.
- Work/Family Policy: the numbers of parents in the work place is high and will continue to rise; an issue is child care in the work place or the community.
- Culturally diverse families: a broad target group requires us to tailor programs; we need to conduct research on the sustainability of culturally diverse families in our EuroAmerican culture.
- Resource conservation (economy): all resources are at risk and the issue of resource utilization and conservation is critical as we work with families and communities.

NEBRASKA GOVERNOR SIGNS ALTERNATIVE ENERGY BILL

On May 15 Governor Ben Nelson approved LB 120 which establishes a comprehensive state energy policy that takes into consideration the costs and benefits of all energy sources, including renewable energy sources. The bill also repeals the 1954 legislative policy statement that gave preference to nuclear energy and the use of radioactive materials.

A related bill, LB 289, which would establish a Biopower Steering Committee to study the feasibility of generating electricity from the use of energy crops, including native grasses, was placed on General File.

ORGANIC RESEARCH GRANT PROPOSALS DUE JULY 31

The Organic Farming Research Foundation (OFRF) considers proposals (generally \$3,000-5,000) twice a year, with the next deadline July 31. OFRF funds organic farming methods research, dissemination of research results to organic farmers and growers interested in making the transition to organic production, and consumer education on organic farming issues. Projects should involve farmers in design and execution. Contact: Grants Program, OFRF, POB 440, Santa Cruz, CA 95061, 408-426-6606.

Nebraska Ag IMPACT Project proposals due July 1 (See CSAS Jan-Feb '95 Newsletter). Call 402-254-2289.

MINNESOTA OFFERS SUSTAINABLE AG MINOR

A new graduate minor program in Sustainable Agriculture Systems at the U. of Minnesota was approved by the Board of Regents in January 1995. The interdisciplinary curriculum, includes an internship with a non-profit organization or producer, and emphasizes the interconnections between agriculture, ecology, sociology, history and economics. For information call Dr. Craig Sheaffer, 612-625-8235, e-mail: sheaf001@maroon.tc.umn.edu.

CAST CONFERENCE ON SUSTAINABLE AG AND THE FARM BILL

Sixty scientists, policy makers and others addressed 200 attendees at a January 1995 conference organized by The Council for Agricultural Science and Technology. Agenda items included conserving and enhancing resources and biodiversity, enhancing food safety, empowering people economically and socially, and enhancing ag markets, competitiveness, and rural development. Speaker and panel comment included:

- Support programs should not dissuade farmers from adopting practices that enhance the environment.
- Conservation programs merit government support and should be targeted at environmentally vulnerable areas a determination that should be based on ecosystems and watersheds instead of on individual fields.
- In developing the 1995 farm bill, related programs should be viewed and coordinated to foster the leveraging of state and local funds for environmental protection.
- The federal government should create a broad definition of sustainable agriculture and design agricultural policies to achieve related goals including: a systems approach, placing land-use practices in a whole-farm and ecosystem context.
- The farm bill and related legislation should integrate and consolidate

- overlapping environmental regulations, and regulations should be replaced, where appropriate, with incentives.
- Research should focus on the identification of indicators of environmental sustainability.
 - Vital rural communities depend on a strong agriculture; a significant portion of the farm population relies on off-farm income, making the development of local enterprises key to the development of many rural communities.

Source: CAST News Release, April 14, 1995. (See Resources)

RESOURCES

"Gray World, Green Heart: Technology, Nature and the Sustainable Landscape." (See Thayer article on page two.) \$49.95. John Wiley and Sons, Inc., 1 Wiley Drive, Somerset, NJ 08875.

"Sustainable Agriculture and the 1995 Farm Bill." \$50. Summarizes series of talks and a panel discussion at January 1995 conference on the research and education agenda. CAST, 4420 West Lincoln Way, Ames, IA 50014-3447, 515-292-2125.

"Our Field - A Manual for Community Supported Agriculture." \$15. 100-page how-to guide for growers and consumers interested in starting CSA; focuses on beginning and marketing CSA projects, as well as best ag practices. Tamsyn Rowley, U. of Guelph, Guelph, Ontario, Canada N1G 2W1, 519-824-4120, ext. 3675.

"Growing Green: Enhancing the Economic and Environmental Performance of U.S. Agriculture." \$20.45. Economic and agronomic models analyze ways in which U.S. ag policy constrains adoption of alternative practices; proposes framework for evaluating national agricultural sustainability and discusses costs and benefits of sustainable practices; and "Jobs, Competitiveness, and Environmental Regulation." \$12.95 + \$3.50 s&h. Economic analysis of regulation in terms of effects on trade and employment; argues that clean environment is compatible with healthy economy. World Resources Institute Publications, POB 4852, Hampden Station, Baltimore, MD 21211, 800-822-0504.

"The Water Quality Incentives Program: The Unfulfilled Promise." \$7. Overview of USDA WQIP and barriers to its success; suggests solutions and improvements to these problems and ways the WQIP relates to ICM and IPM systems. Center for Rural Affairs, POB 406, Walthill, NE 68067, 402-846-5248.

"Funding Safer Farming: Taxing Pesticides and Fertilizers." \$5. Report from Center for Science in the Public Interest recommending state-by-state implementation of modest taxes or fees on ag chemicals to be used to teach farmers techniques of sustainable ag. CSPI, 1875 Connecticut Ave. NW, Suite 300, Washington, DC 20009, 202-332-9110.

"Using Biodiversity to Protect Biodiversity: Biological Control, Conservation and the Biodiversity Convention, 1994." No charge. Centre for Agriculture and Biosciences (CAB) International. Addresses the relationship between biological pest control and several key issues and objectives of the Biodiversity Convention. International Institute of Biological Control, Silwood Park, Buckhurst Rd, Ascot, Berks SL5 7TA, England, phone 03-44-872999, e-mail: cabi-iibc-hq@cgnet.com

"A 2020 Vision for Food, Agriculture, and the Environment, 1994-1995." No charge. Examines agri-cultural, economic and environmental issues with goal of developing consensus for action on meeting global food needs; topics include political ramifications of sustainable farming. International Food Policy Research Institute, 1200 Seventeenth Street, NW, Washington, DC 20036, 202-862-5600.

"National Organic Directory, 1995." Contact information for organic growers, wholesalers, farm suppliers and other organic-related businesses and nonprofit organizations; certification and resource groups, updated summaries of state and federal organic laws. \$37.45 + \$3.00 s&h within US, \$5.92 to Canada; Calif. residents include \$2.72 sales tax. Community Alliance with Family Farmers, POB 464, Davis, CA 95617, 800-852-3832.

"Farm Scale Composting." \$10. 80-page publication of BioCycle. JG Press, 419 State Avenue, Emmaus, PA 18049; 610-967-4135.

DID YOU KNOW...

The Nebraska Legislature's Ag Committee sent a letter to Secretary Glickman calling on USDA to study whether the livestock market depression has been caused by increasing packer concentration. A committee official said today's conditions are similar to those experienced in the early 1900s when five packers controlled 70% of all cattle slaughter.

Referring to the trend toward contract farming, the president of the American Farm Bureau Federation says the goal "is no longer to sell what we can produce, but to produce what we can sell."

USDA has researched kenaf with favorable results for more than 50 years, and now one of the founders of the modern environmental movement, David Brower, has written the first commercial book published on paper made from this hemp-like plant. The pages of "Let the Mountains Talk, Let the Rivers Run" feels like paper made from trees. The 196-volume, which costs about 20% more to make than a conventional-paper book, critiques today's environmental movement for being too compromising.

In mid-May EPA approved an environmentally-friendly pesticide, Confirm, that mimics a caterpillar's natural hormone causing it to shed its skin, resulting in death. It has no effect on other animals and breaks down to water and carbon dioxide after a few months.

IANR Program Themes:

- Enhance economically viable and sustainable food and biomass systems.
- Improve natural resources management and enhance environmental quality.
- Strengthen the quality of life of individuals and families and contribute to community viability.

Source: "A Strategic Plan for the University of Nebraska Institute of Agriculture and Natural Resources," March 1995.

There are now 17 private certification companies that inspect and verify that food is organic; many people feel it is time for this rapidly growing industry to be federally regulated.

More than 20% of hog production is now done under contract, up from 2% in

1980; 7% of food grain and feed grain is produced under contract, up from less than 2% in 1970.

A study by the National Center for Economic Alternatives says "The U.S. is arguably the most waste-generating society in human history." Of the nine northern industrialized countries studied, France, Canada and the U.S. showed the greatest decline in environmental quality.

The 1994 world agrochemical market experienced the largest increase since 1984, reversing the 1993 market decline.

Nebraska's governor has signed new legislation classifying deer, elk, ostrich and emu as livestock, allowing the state to develop animal health regulations for alternative livestock operations.

U.S. has lost 800,000 farms since 1975; today USDA estimates 600 farmers go under each week.

Since 1982 the index of prices received by farmers has risen 7.5%, while the index of prices paid by farmers for production inputs has jumped over 23%.

COMING EVENTS

Contact CSAS office for more information:

- Jul. 6-8 -- Midwest SAWG mtg. on farm policy and value-added marketing/processing, West Lafayette, IN.
- Jul. 17-19 -- "Agricultural Management to Protect Water Quality," Amer. Soc. of Agron. NCR Meeting, Grand Island, NE. Includes Annual Water Resources Tour.
- Jul. 19-22 -- Burt Smith's visits to farms using intensive grazing, NE.
- Jul. 23-26 -- Fourth North American Agroforestry Conference, Boise, ID.
- Aug. 6-9 -- 50th Annual Meeting, Soil and Water Conservation Society, Des Moines, IA.
- Aug. 9-11 -- Management Intensive Grazing School, Linneus, MO.
- Aug. 17 -- CSAS Sustainable Ag Tour, southeast Nebraska.
- Sep. 9 -- Festival of Color, theme is water quality, near Mead, NE.
- Oct. 7-8 -- The Politics of Sustainable Agriculture, Eugene, OR.
- Oct. 18 -- Annual Groundwater Symp., Lincoln, NE.
- Oct. 22-25 -- New Crops: New Opportunities, New Technologies, Indianapolis, IN.
- Nov. 6-8 -- Linkages among Farming Systems and Communities, North American Symposium, AFSRE, Ames, IA.
- Nov. 16-17 -- Environmental Enhancement through Agriculture, Boston, MA.



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