September 1995

Center for Sustainable Agricultural Systems Newsletter, September/October 1995

September-October 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 via the gopher path:

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Sustainable Agriculture

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STAUBER KICKS OFF EXTENSION TRAINING

Dr. Karl Stauber, USDA Under Secretary for Science, Education, and Economics, was the featured speaker at the Michigan State University Extension satellite conference, Shared Leadership in Our Organization. His presentation was followed by discussions in the counties. During the last part of the telecast, Stauber answered questions from educators throughout Michigan.

He began by referring to the decrease in farmers and increase in farm size. One hundred years ago, 42 percent of the people lived on farms, averaging 147 acres. Today 300,000 farms produce 80 percent of the food and fiber. Extension cannot abandon traditional farmers. At the same time, we must also demonstrate to urban populations the importance of our programs.

Stauber stated that Extension could ignore change, fight change, or accept change and use it as an opportunity to become more effective and efficient. Extension has to focus on leaders and partners, not leaders and followers. It needs to create a system that distributes power, strategic plans, and knowledge to ensure its survival. He cautioned that shared leadership does not mean no leadership, rather, shared responsibility.

A national working group of 15 people is helping define Extension's changing role. The group is tackling several questions:

- - What is the vision of the future for Cooperative Extension? (public interest)
- - What is the function of government in financing and accountability? (public investment)
- - Is Cooperative Extension producing outcomes and solving problems? (public relevancy)
- - Are there other models of delivery besides an educator in a county? (public service)

In general, educators agreed with Stauber's presentation but listed Extension's hierarchy, reward system, and image as constraints. Educators questioned him on how to build talent in teams, how to cultivate different expectations from stakeholders, and how to show recognition. Stauber reminded the audience that a learner-centered approach to problem solving is relatively new compared to the teacher-centered model and will take time to incorporate.

Submitted by Heidi Carter

SUSTAINABLE AGRICULTURE FIELD DAY AND TOUR

Integration of crops, livestock, horticulture and forestry was the theme of the 14th sustainable agriculture field day and tour held on August 17th. The 70 participants were impressed with the way that research, teaching, and demonstrations of efficient farming techniques were brought together in the emerging programs of the Agricultural Research and Development Center (ARDC). The Integrated Farm Project, an activity partially funded by federal grants through the CSAS, was featured during the field day. Starting at the ARDC headquarters near Ithaca, the group toured the new education and research facility that is partially earth sheltered, includes passive solar heating, and a number of heat pumps for cooling and heating of the building. They moved on to experiments and demonstrations in the ARDC fields.

A contour strip-cropped hillside with irrigation had three different rotations and enough spatial diversity in the field to help control soil erosion. The three-year corn-alfalfa rotation combines a perennial crop with an annual to drastically reduce soil loss compared to a hillside in monoculture cereal. A two- year corn-soybean strip crop contour pattern gives some of the same benefit in erosion control because the strips with heavier corn crop residue can capture soil that leaves the soybean strip upslope during a heavy rainfall. A four-crop rotation in two years includes corn-wheat/soybean-cover crop; a short-season corn hybrid or corn cut for silage and a relay planting of soybeans into growing wheat in May allow this level of intensity of cropping. This is possible only with irrigation in the risky climate of eastern Nebraska.

A major compost area at ARDC allows accumulation and management of manure from the dairy and beef feedlot operations, together with whatever carbon source is available from the farm or nearby. To date the Integrated Farm Project has designed a fertility program that supplies about 30 percent of the nitrogen and most of the other macro- and micronutrients to about 800 cropped acres. Since much of the grain produced on this land goes into livestock feed for experiments, we are closing the nutrient cycles to the greatest degree possible on the farm. Some research is underway on the long-term impacts of compost on soil nutrient availability and other soil quality characteristics.

Three of the undergraduate student interns who manage micro- farms at the ARDC were featured on the tour. They each described the objectives of this new experiential learning approach that includes planning crops and rotations, planting and care for crops and livestock, harvest and complete analysis of the results for the year. Five types of farms are being compared for their productivity, economic return, environmental soundness, and energy efficiency. Visitors listened with interest to the presentations of the students and asked pointed questions about what they were learning about the complexities of farm management. (See following article.)

The impacts of shelterbelts on vegetable production were summarized by Drs. Laurie Hodges and Jim Brandle. Several years of data have been collected on cantaloupe, asparagus, and cabbage growing behind windbreaks compared to the same crops without shelter. With the protection of windbreaks, crops mature earlier and have a higher percentage of market quality produce. Quality of some crops is also enhanced by the protected environment. This year there is a comparison among 22 hybrids of sweetcorn, and a comparison of protection against earworm using soybean oil versus an untreated check. It is essential to get specialty crops to market early to reap the benefits of high prices.

The effects of shelterbelts on rates of gain and herd health of cattle are being studied by Dr. Terry Klopfenstein and colleagues. They have found no difference in rate of gain between groups of cattle grazing corn or sorghum stalks behind windbreaks, compared to those with no apparent protection. They have also compared livestock grazing conventionally planted corn with that in a ridge-till system. Although more roughage appears to be lost due to trampling between the rows where the animals walk in a ridge-tilled field, there have been no measured differences in rate of gain.

In the afternoon, the group visited Greg Heldt's commercial scale vegetable production operation. He discussed the importance of learning each crop, finding out about proper rotations, and especially the complexities of marketing. There is a great difference between handling, storing, and marketing perishable crops such as squash, melons and cabbage, and the grain crops that are more frequently grown by Nebraska producers. The costs of production, periodic labor needs, and risks far exceed those faced by corn and soybean growers. Two other farm visits included an experimental test of a new herbicide and its potential for leaching into the aquifer, and a comparison of corn-soybean and sorghum-soybean cropping systems under dryland conditions. The tour was co-sponsored by the Center for Sustainable Agricultural Systems and the Nebraska Sustainable Agriculture Society. The afternoon farm visits were organized by Keith Glewen, Saunders County Extension Educator and Unit Leader.

Submitted by Chuck Francis

STUDENT MICRO-FARMS A FIELD TOUR HIGHLIGHT

"They really asked me some tough questions, especially about organic farming," said Jason Splichal after the visitors left his plots at ARDC. During the annual sustainable agriculture field tour in August, participants singled out the presentations by our undergraduate student interns as one of the high points of the day. People who listened to the students and probed their understanding of the farming designs and practices were impressed with the in-depth discussion of why certain crops were grown and how the farms were designed.

The student micro-farm project is directed by Richard Olson, a graduate student in the UNL Department of Agronomy. Students are enrolled in a three-unit seminar through the spring during which they plan the crop rotations, calculate seed and other input needs, line up equipment, and do preliminary economic projections based on their plans. While enrolled in a practical summer course through the university, they plant and care for the crops on their individual farms, but often work as a team when there is a peak labor need on one of the farms. Also included are field trips to farms run by their mentors and to other experiment station sites. Each intern has a special research project in conjunction with faculty and graduate students working at the ARDC site; this year the experiments included surge irrigation, weed competition in corn, organic control of earworm in sweetcorn, and rotational grazing of beef cattle. There is a farmer mentor who works with each of the students, as well as daily supervision by the manager of the Forestry, Fisheries, and Wildlife Department experimental farm area.

In the fall semester, the students harvest the fields and use the data to calculate biological yields, economic returns, and energy efficiency of the different farms. They are comparing conventional corn-soybean rotation with four alternative approaches: diversified conventional system, organic system, agroforestry system, and forage-based livestock production system. Next year we plan to have eight student interns enrolled in this experiential learning situation that complements the formal classroom environment. Anyone who knows of UNL students who might be interested in this internship is encouraged to refer them to Dr. Chuck Francis, or to send their names directly to him so he can send them an informational brochure.

This project is funded by a grant from the USDA Sustainable Agriculture Research and Education (SARE) Program.

Submitted by Chuck Francis

BEADLE CENTER DEDICATION SPEAKER FOCUSES ON VALUES

What is the importance of values in biotechnology research? In his address for the dedication of the UNL Beadle Center for Genetics and Biomaterials Research, Nobel Prize winner Dr. James Watson concluded that this arena is the most complicated one of all. With all the sophistication, cost, and glamour of sequencing the human genome, we tend to forget some of the more complex questions of what we do with this information. It may be clear that 'correcting' a genetic condition to produce improved health or longevity is desirable; it is far less clear whether this same information should be used to 'engineer humans' or somehow improve their physical or mental aptitudes. This is analogous to our research in component technologies in agriculture or in designing sustainable communities. The simple questions may be easy to answer, but the value structure within which those answers are applied is far more difficult to understand. It is

this value system that often is at the foundation of decision making, and will ultimately influence the future of a farm or a community.
Submitted by Chuck Francis

UNL BEADLE CENTER'S NAMESAKE WAS ALSO A FARMER

George W. Beadle, after whom the Beadle Center is named, was not only one of America's foremost geneticists, but also a farmer, educator, author and humanitarian. In 1958 he became the only Nebraskan and the only University of Nebraska graduate to receive the Nobel Prize.

He was born in 1903 on a 40-acre farm near Wahoo, Nebraska where his father cultivated potatoes, asparagus, strawberries and bees. He retired from the presidency of the University of Chicago in 1968 to do genetic research in his Chicago cornfields. About this time he and his wife co-wrote The Language of Life, a book to help nonscientists understand dramatic scientific discoveries and appreciate the social implications of those discoveries. He pondered the ethical implications of genetic manipulation, saying that society must decide whether man is to control his own biological evolution.

Source: The Scarlet, University of Nebraska-Lincoln, 9/15/95

"Honey, I wish we were home making compost."

World renowned geneticist George Beadle to his wife while dressing for the Nobel Awards banquet in Stockholm.

ROSSMAN FARM DEMONSTRATES DIVERSITY

If diversity on a family farm can spell success, Ron and Maria Rossman of Harlan, Iowa are using the 'd-word' in a big way. Field crops, cattle, hogs, specialty products, and trees were shown during an August 31 field day attended by 60 people and sponsored by the Practical Farmers of Iowa (PFI). Ron described a range of enterprises, and more importantly how these activities interacted biologically and complemented each other in the management scheme. Corn-soybean rotations are practiced on some acres. When weeds build up, those fields are rotated to a small grain, oat or rye with clover or alfalfa. Some crop fields rotate back to grass/legume pastures. Non-chemical methods of weed management include early tillage, rotary hoeing after planting, and cultivation. Rotation of cereals with legumes provide diversity in nutrient use from year to year, and cereals benefit from the rotation effect and nitrogen fixed by legumes.

Further biological integration of enterprises is provided by animals in the system. Grain and hay crops are fed to cattle and hogs, and manure is composted before application on fields going to corn. Rotational grazing of their Simmental/Red Angus cross cattle has increased pasture productivity and helped in weed management. Hay is harvested from alfalfa fields, grass waterways, and field borders. Thus nutrient cycles are completed and as many nutrients as possible are conserved within the farm. Organic certification has brought added income in sale of food quality, clear hilum soybeans. Sale of rye seed and straw further adds value to enterprises. Turnips planted with oats or rye after small grain harvest provide fall grazing after grass pasture is finished and before corn stalks are available in late fall. For further information on PFI field days and activities, contact Rick Exner, Room 2104, Agronomy Hall, ISU, Ames, Iowa, 50011, 515-294-1923.

Submitted by Chuck Francis and Heidi Carter

ORGANIC INDUSTRY PREPARES FOR NEW LABELING STANDARDS

The organic industry is preparing for the Organic Food Production Act, according to an article in Health Foods Business (August 1995). Among the issues the law addresses are the establishment of standards and procedures for food production and packaged goods, and clarification of basic parameters for labeling organic products. For example, products containing at least 95 percent organic ingredients may display the word 'organic' on their front label. The proposed program of standards and materials will most likely not be published in the Federal Register until fall 1996 and implemented in 1997, according to Kathleen Merrigan, senior policy analyst at the Wallace Institute and member of the National Organic Standards Board, which is responsible for advising the Agriculture Secretary on establishing national guidelines for organic food production, certification and accreditation.

Source: Alternative Agriculture News, September 1995

HOUSE-SENATE CONFERENCE COMMITTEE SUPPORTS ATTRA FUNDING

In the early hours of the morning on September 28, the ag appropriations conference committee voted for $2.3 million to the portion of the USDA budget that contains two programs: ATTRA (Appropriate Technology Transfer for Rural Areas) and RTCDGP (Rural Technology and Cooperative Development Grants Program). Although final allocation between the two programs is not known at press time, the bill retained Senate language which called for ATTRA to be funded up to $1.3 million.

"We were very thankful that the committee decided to keep funding for both programs in our USDA category," said Teresa Maurer, ATTRA Project Manager. Jim Lukens, Sustainable Agriculture Program Manager for the National Center for Appropriate Technology, the nonprofit which administers ATTRA, added: "We are also very appreciative of those individuals and organizations active in sustainable agriculture who took precious time in a frantically busy week to express their support at key times to key people."

ATTRA's service goal is to "respond to farmers, information providers, organizations and communities seeking information that will help change, renew and support an ecologically and economically sound agriculture." ATTRA is available by calling 1- 800-346-9140, or sending e-mail to: askattra@ncatfyv.uark.edu. Editor's Note: The CSAS office has referred several people to ATTRA and received materials directly as well; we have been very pleased with this service. You can get information on topics from amaranth to zebras.

SWCS CALL FOR PAPERS

You are invited to submit an abstract to be considered for presentation at the Soil and Water Conservation Society's 51st Annual Conference, July 7-10, 1996 in Keystone, Colorado. Abstracts for oral presentations are due November 20, poster presentations and computer exposition due January 3. Themes include: conservation and ecosystem science, analysis, technologies, and applications; ecological decision making and management; the spirit of conservation and sustaining ecosystems; human dimensions. Direct questions to SWCS Director of Education and Professional Development, Timothy Kautza, 515-289-2331, ext. 12. RESOURCES Weed Killers by the Glass. $12 + $3 s&h. Report on agricultural weed killers found in the tap water of 28 cities in 11 states (one of which was Nebraska) between May 15 and July 2, 1995. Environmental Working Group, 1718 Connecticut Ave., NW, #600, Washington, DC 20009, 202-667-6982, or on Internet: www.ewg.org. Animal Agriculture: Information on Waste Management and Water Quality Issues (GAO/RCED-95-200BR). Free. U.S. General Accounting Office, PO Box 6015, Gaithersburg, MD 20884-6015, 202-512-6000. Natural Pest & Disease Control, 1995. $9.95. Handbook of least- toxic pest control provides information on insects and diseases, and describes natural pest management methods. In lay terminology, explains techniques and describes importance of natural farming practices, including compost, beneficial insects, crop rotations, inter-cropping, cultivation of diverse plant varieties, use of resistant plants, timing of planting, plant spacing and insect barriers and decoys. ECHO, 17430 Durrance Road, North Fort Myers, FL 33917-2200; 813-543-3246. The Economics of Organic Farming: An International Perspective. $85 (Americas only) or L49.95. ISBN 085198 911 X. Drawing on studies from the UK, USA, Canada, Australia, Germany, Denmark and Switzerland, this book provides the first comprehensive international review of the economics of organic farming.

The factual information and empirical data from the studies reported make this book a valuable resource for researchers, policy analysts, professional advisors and students in agricultural economics, management and agri-environmental policy. CAB INTERNATIONAL, Wallingford, OX10 8DE, UK Tel: 0491 832111, Fax: 0491 826090. For a list of contents, contact the CSAS office. For more information, contact co-editor Nic Lampkin, Welsh Institute of Rural Studies, University of Wales, Tel: +44 (0)1970 622248, Fax: +44 (0)1970 622238F, E-mail: nhl@aber.ac.uk The new NPSINFO e-mail discussion list is a forum for open discussion of nonpoint source pollution issues and is sponsored by the USEPA's Office of Wetlands, Oceans, and Watersheds. This list welcomes participants from all public and private sectors, including government agencies, nongovernmental organizations, researchers, educators, local water managers, industry, agricultural producers, and concerned individuals. Possible topics include (but are not limited to) agricultural NPS, urban runoff, technology, educational and funding alternatives, coastal NPS, forest management, BMPs, hydrological modification and aquatic habitat modification. Details on the list are provided below. To subscribe, send the message: subscribe NPSINFO firstname lastname to: listserver@unixmail.rtpnc.epa.gov EXTOXNET--The Extension Toxicology Network. Online database of pesticide and toxicology information maintained by a consortium of scientists at the University of California, Davis, Oregon State University, Michigan State University and Cornell University. Database contains pesticide factsheets, articles about pesticide regulation and information on other topics related to pesticides and toxic chemicals. Accessible by World Wide Web at: http://www.oes.orst.edu:70/1/ext accessible by gopher at: oes.orst.edu (Note: once at gopher site, choose "Oregon State University Extension Projects/Programs" and then "EXTOXNET"). For information about EXTOXNET, send e-mail to: extoxnet@oes.orst.edu COMING EVENTS Contact CSAS office for more information: 1995 Nov. 2-3 -- Alternative Weed Management Conference, Great Falls, MT Nov. 6-8 -- Linkages among Farming Systems and Communities, North American Symposium, AFSRE, Ames, IA Nov. 9 -- Kerr Field Day: Livestock, Forage and Agroforestry, Poteau, OK Nov. 12-14 -- Community Supported Agriculture Conference, San Francisco, CA Nov. 16-17 -- Environmental Enhancement through Agriculture, Boston, MA Nov. 30-Dec. 2 -- Celebrating 25 Years of Eco-Agriculture, St. Louis, MO Dec. 1-3 -- Annual Upper-Midwest Community Supported Ag Conference, Madison, WI Dec. 11 -- Grazing Maize Conference, Wausa, NE Dec. 12-15 -- National Agricultural Ecosystem Mgt Conference, New Orleans, LA 1996 Jan. 4,5 -- Nebraska Forage and Grassland Conference, Columbus, Lexington, NE Jan. 24-27 -- Annual Ecological Farming Conference, Pacific Grove, CA Feb. 2 -- Nebraska Sustainable Agriculture Society Western Area Conference, Ogallala, NE Feb. 6-7 -- Mid-America Alfalfa Expo, Hastings, NE Feb. 15,16 -- Dairy Grazing Conference, Hartington, Fairbury, NE Feb. 20-25 -- North American Farmers' Direct Marketing Conference, Saratoga Springs, NY Feb. 24 -- Nebraska Sustainable Agriculture Society Annual Meeting, Columbus, NE Feb. 27 - March 1 -- Third National IPM Symposium, Washington, DC