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Center for Sustainable Agricultural Systems Newsletter

May-June 1997

Specialty Crop Field Days August 9 and 16

The second annual specialty crop field days will be held in Lincoln on August 9 and 16. The tours will begin at the Haymarket Farmers' Market. The afternoon will include visits to nearby farms. Cosponsors of the event include the CSAS and the Nebraska Sustainable Agriculture Society. For more information contact Pam Murray at the CSAS office (402-472-2056, csas001@unlvm.unl.edu) or Cris Carusi at NSAS (402-254-2289, cecarusi@hartel.net).

Farmers' Markets Foster Sense of Community

Shades of red, green and yellow fruits and vegetables gleam temptingly from tabletops and pickup tailgates of a farmers' market. Amidst the colorful mix is the trade of economic growth and community spirit.

Nebraska has 38 farmers' markets across the state. These producers provide communities with an alternative source of fresh produce, promote entrepreneurship, and contribute to town vitality. Farmers' market producers have direct access to their buyers' eyes and ears to help them grow foods that fit local tastes. For instance, some producers may offer giant melons for picnics or midget melons better suited for small families.

Beyond business, a farmers' market is a chance for rural neighbors to meet, for urban residents to learn more about agriculture, and for retired producers to stay active on a smaller scale. The outdoor markets have become so popular that retail grocers are adopting similar marketing techniques in displays to make produce appear fresher and better tasting.

In 1996, more than 2,500 farmers' markets existed in the U.S., serving almost one million customers a week. The USDA estimates sales at over \$1 billion, with the average customer spending about \$17 per visit.

Some of the challenges to producing for a farmers' market include producing a diverse mix of crops of consistent high quality, keeping the produce fresh and cool, matching supply and demand, and developing a loyal customer base. Producers must stay on top of varying local ordinances that govern where, when and how they can market their product. In Omaha, for example, markets can be located only in areas zoned for selling goods. The Lincoln farmers' market requires bakers to attend a food safety course before they can sell baked goods in the Haymarket. Items cannot be sold by the pound unless a scale certified by the Nebraska State Office of Weights and Measures is used.

Farmers' markets are places of dynamic social interactions where producers, residents and tourists connect with others of various ages, ethnic backgrounds and income levels. This "spirit of place" is the essence of a community and is most evident in successful farmers' markets.

Source: Excerpted from article in April 1997 *Educator Extra*. Comments are those of Laurie Hodges, UNL commercial vegetable specialist.

Agroforestry Satellite Broadcast Available on Video

To address the growing interest in agroforestry, a 2 ½hour USDA satellite broadcast on March 20 provided information on the purpose, concepts, opportunities, and benefits of agroforestry. The program, targeted to field professionals, provided information on: 1) what agroforestry is, 2) different types of agroforestry practices (alley cropping, forest farming, riparian forest buffers, silvopasture, and windbreaks), and 3) how agroforestry links to other USDA programs. To obtain a copy of the taped broadcast, call the National Agroforestry Center hotline (402-437-5178, ext. 41) and leave a message.

Economic, Environmental and Sociological Effects of Whole-Farm Production Systems in Eastern Nebraska

Third in a four-part series: Environmental-Economic

[With primary funding from an Agriculture in Concert with the Environment (ACE) grant, a team of UNL researchers conducted one of six regional studies that will be aggregated to assess the national impact of moving toward a more sustainable agriculture. The goal of the Nebraska project was to study existing

whole-farm system groups along a continuum from "conventional" to "alternative" and compare the economic, environmental, and sociological performance/characteristics of each group. Team members of the 1993-1996 study were Glenn Helmers, Kevin Bernhardt, John Allen, Alice Jones, and William Powers. For more information, contact Pam Murray in the CSAS office.]

The objective of this research was to quantify the impact of alternative production systems on the K-factor of the RUSLE (Revised Universal Soil Loss Equation). A subobjective was to quantify the impact of alternative production systems on the soil properties used to determine the K-factor in the RUSLE.

For this study, alternative production systems were selected using the criteria of the Organic Crop Improvement Association (OCIA) for organic farms.

Parameters of the K-factor for these alternative production systems were then compared with those of adjacent conventional systems. Three pairs of fields were identified in east central Nebraska. Each pair consisted of an alternative and conventional field. Within a pair, the fields sampled had similar soil type, climate, and relief.

It was found that alternative production systems have a significant effect on the soil parameters used to determine K-factors in RUSLE. Organic matter levels and permeability values were significantly higher for alternative systems at all locations in the study with the exception of permeability values for one soil.

However, while these higher organic matter and permeability values did not translate into significantly lower K-factors for all soils, K-factors were observed to be significantly lower on average for alternative production systems. The results of this study indicate that K-factors can and do vary within a soil type, and alternative production systems can reduce soil erodibility and erosion.

For two soil series, Redstoe and Moody, economic-environmental trade-offs of alternative cropping and herbicide-tillage systems were studied using a multiple integer linear programming model. Compared to the herbicide-tillage options, an organic tillage production alternative was also included here in which no herbicides or pesticides could be used (fertilizer allowed). This was an option for both corn and soybeans.

Five cropping systems were studied: 1) continuous corn (Cont. C), 2) corn-soybeans (C-B), 3) corn-corn-soybeans (C-C-B), 4) corn-oats (C-O), and 5) corn-oats-alfalfa-alfalfa (C-O-A-A). These systems could mix herbicide-tillage systems. In addition, optimization of cropping systems was also completed for each of the four herbicide-tillage systems (banding, broadcasting, no-till, and organic). Two fertilizer assumptions were made for each sub-analysis: 1) no manure but fertilizer applied using the 1.25 rule, and 2) manure only.

Using the EPIC computer modeling program, environmental criteria were estimated for each soil, slope, fertilizer assumption, and cropping system/herbicide-tillage. Five environmental criteria were examined: 1) surface nitrates - lb/ac, 2) leached nitrates - lb/ac, 3) surface pesticides - gm/ac, 4) leached pesticides - gm/ac, and 5) soil erosion - tons/ac. In the analysis, arbitrary limits for

each environmental criteria are assumed for purposes of focusing on environmental problems and where solutions to those can occur. These are 20 lb/ac, 2 lb/ac, 4 gm/ac, 1 gm/ac, and 5 tons/ac, respectively.

Summarizing, profit maximizing solutions are generally effective in meeting the environmental criteria as defined. This is most apparent for the Redstoe situations and the Moody Dryland-Irrigated situation (except leached nitrogen). For the Moody soils, some mixed results occur. For 1% slopes, profit maximizing solutions tend to be generally environment efficient in that other alternatives involve very high costs. For the Moody 10% slopes, crop organizational changes could alleviate some environmental problems with moderate costs in the neighborhood of \$50 per acre.

Editor's Note: The first article in this series discussed how the producers/production systems were classified into clusters; the second article focused on economic analysis of whole-farm systems; the fourth and final article will address the sociological aspects of the study.

Did You Know...

Every American annually uses an average of 84 tons of Earth's resources to support his/her lifestyle, the World Resources Institute said.

Why Bother to Rotate Vegetable Crops?

We frequently urge growers to rotate their vegetable land, especially if growing cruciferous (cabbage, broccoli, kale, kohlrabi) cucurbit (vine crops), or solanaceous (tomato, pepper, eggplant) crops. But good, irrigated land for alternative crops may not be readily available. In the last 15 years, the vegetable industry has become more intensive, using such production practices as double cropping and high plant populations to increase efficiency. Greater yields are produced on less acreage. Good management practices become more important as the intensity of production increases. One of the most important is a good crop rotation schedule.

Crop rotation refers to a long-range plan for growing different crops on the same land. The length of time to complete the cycle may vary from two to eight or more years, depending on the crops grown. Double-cropping, or growing two crops on the same land in a single year, can be an important part of the rotation. Some of the advantages of a good crop rotation include several which can directly affect profits. These include:

- Reduce losses to disease. Disease organisms can survive in the soil as persistent structures or in plant debris from year to year. As crop residue decomposes over time, the life cycle of the pathogen is interrupted.
- Many of the nematodes which infest vegetables cannot reproduce in grasses. A grass crop, such as sweet corn, in the rotation can minimize nematode problems.
- Manage insect pressure. Small grain stubble or sod can serve as a reservoir for insect populations. If crops such as fall cabbage are planted in wheat stubble, seedlings must be watched carefully for insect damage.
- Residual nitrogen management. Crops which take advantage of high residual soil fertility can follow those which tend to leave nutrients in the soil.
- Minimize soil erosion. A good crop rotation will protect the soil during the winter with either crop stubble or a cover crop.

A good crop rotation requires some thought but is not too complex. Crops with similar pest problems should not follow each other. Generally, it is a good idea to alternate shallow-rooted crops with deep-rooted crops. Rotation with a grass crop (field corn, sweet corn, winter wheat, oats) should be planned to allow use of herbicides for broadleaf weed control. Many herbicides registered for use in vegetables are weak on broadleaf weeds. Although the grass crop in rotation may not generate the greatest profit per acre, the benefit is in reduced weed pressure in the following vegetable crops and minimizing the soil erosion during the winter. There is no "standard" crop rotation schedule. By reviewing the production requirements and pests common in each crop, patterns will become evident and a rotation scheme can then be planned to minimize adverse impacts and increase sustainability of the land for desired long-range profit.

Source: *From Farm to Market*, May 8, 1997, UNL Dept. of Horticulture, Laurie Hodges, Editor

OCIA Relocates to Lincoln

Earlier this year the Organic Crop Improvement Association International relocated its main office from Ohio to Lincoln, Nebraska. OCIA is an internationally recognized, farmer-owned and operated grassroots certification program with more than 70 chapters (Nebraska has three) totaling more than 35,000 grower members all over the world.

The OCIA trademark is a farmer-owned seal of quality for organic foods, backed by an audit trail, which can trace a product from the market shelf back through all the intermediaries (including the farmer), right to the seed. Such an audit trail is

the consumer's best guarantee that a product really is organically grown and processed.

Since the OCIA-certified product is tracked at every stage from the field through processing to packaging processors and wholesalers that handle OCIA-certified products must also be certified if they wish to use the OCIA trademark to distinguish themselves in the marketplace. This entire process is verified by an accredited independent inspection of the facility and records on at least an annual basis. OCIA certification standards exceed USDA proposed organic standards and the accreditation requirements of the International Federation of Organic Agriculture Movements.

For more information contact: OCIA International Headquarters, 1001 Y Street, Suite B, Lincoln, NE 68508-1172, phone: 402-477-2323, fax: 4024774325, email:ociaintl@bright.net.

Minigrants: A Proven Technique for Learning about Sustainable Agriculture

During the past 30 months the North Central Sustainable Agriculture Training Program (NCSATP) has awarded 32 minigrants to support sustainable agriculture education. The goal of the minigrant project is to enhance learning by providing on-farm experience with various systems and by fostering the exchange of ideas among farmers, Extension educators, Natural Resources Conservation Service specialists, and nonprofit representatives.

Recipients of minigrants have included the University of Illinois Extension, Michigan Integrated Food and Farming Systems, Lincoln University, and others. A typical grant is \$1000 to \$1,500, and a total of \$16,521 has been disbursed to date. Principal investigators submit reports that include evaluation and suggestions for other trainers.

At the 1996 NCSATP review meeting, state sustainable agriculture coordinators considered the minigrant project a priority for future funding. Many commented that minigrants are important because they provide programming opportunities they could not afford otherwise.

Success of the program is most clearly demonstrated through the information that participants have gained and could apply in their work. The following comments are extracted from reports.

Nebraska farmers and Extension educators visited Baldrige Hybrids in Ohio:

"On dairy farms, the window of grazing maize is probably about 75 to 110 days after planting. Their research shows protein drops from 15.6% (78 days) to 9.7%

(91 days). During that same time the dry matter accumulation increases from 14, 682 pounds to 21, 828 pounds. Daily or twice daily strip grazing is efficient use of grazing corn."

Fred Blackmer, Iowa State University agronomist, delivered one of the keynote talks at the Innovative Farmers of Ohio annual meeting:

"Farmers in attendance were particularly impressed with the data presented that showed the net savings that could be realized by timely applications of appropriate amounts of nitrogen fertilizers. Using the late spring nitrogen test in corn frequently meant that farmers could substantially reduce their nitrogen input, thus reducing costs and reducing the leaching of nitrogen, an important environmental concern in much of the Midwest."

The Michigan Agricultural Stewardship Association invited Bob Leader, a farmer from Brookston, Indiana, to speak at the Agriculture Mega Conference in Lansing:

"Two Midwest companies have joined forces to introduce this community-based concept for the first time. Triple F, Inc. provides the technology to remove oil from oilseeds by mechanical pressing rather than chemical extraction methods used by major processors. BioResearch International, Inc., has developed methods to process the oil into a wide range of value-added products. By producing consumer-ready goods rather than raw materials, the farmer gains a larger portion of the profit margin that enables him or her to remain a viable entity in the future landscape of American agriculture"

Dennis Johnson, University of Minnesota Dairy Specialist, used participatory approaches at a sustainable agriculture training workshop in North Dakota:

"Johnson stressed Extension educators' roles may change when dealing with sustainable agriculture audiences. They may be less a teacher and more a facilitator or networker. Johnson practiced what he preached by constantly asking questions and facilitating dialogue with the participants, seeking their input. In this way, he showed that he was not necessarily the expert and that others had knowledge and experiences to share that strengthened the learning experience."

What makes these educational events click? According to grant recipients, planners must project that their work and the event are valuable, identify the big-picture purpose of the activity, focus on the group of people they want to see there, and ask for help from many individuals. For more information on the minigrant project, contact Heidi Carter at 402-472-0917.

Submitted by Heidi Carter

Resources

Leopold Center Progress Report: Summaries of 16 Research and Education Projects, 1997. Free. Describes and briefly evaluates 16 sustainable agriculture projects in Iowa, stressing research in education, livestock, pest management and water and soil quality. Leopold Center for Sustainable Agriculture, Iowa State University, 209 Curtis Hall, Ames, IA 50011, 515-2943711, leocenter@iastate.edu.

Water Resources in the TwentyFirst Century: Challenges and Implications for Action, 1997. Free. International Food Policy Research Institute. Discusses threats to agricultural water supply from pollution, growing demand, salinization and other causes, and describes ways to increase water availability, including desalination, waste water reuse, capture and diversion of rainfall, and using surface and ground water. Examines potential to manage water supply and/or water demand to conserve water supplies, and makes policy recommendations. IFPRI, 1200 Seventeenth Street, NW, Washington, DC 200363006, 202-8625600, ifpri@cgnet.com.

The Myths and Realities of Pesticide Reduction: A Reader's Guide to Understanding the Full Economic Impacts. \$6. New report helps readers understand and evaluate the economic predictions in studies about restricting the use of, or reducing the risks from, agricultural pesticides. The report also makes recommendations for researchers analyzing pesticide reduction strategies who are trying to clarify the scope and inherent limitations of their work. Wallace Institute for Alternative Agriculture, 9200 Edmonston Rd., #117, Greenbelt, MD 20770, 301-4418777, hawiaa@access.digex.net.

Our Children's Toxic Legacy. \$24 + \$3.50 s&h. John Wargo, associate professor at Yale University and one of the nation's leading experts in pesticide policy, traces the history of environmental law and science, with a focus on the special hazards faced by children. Order Dept., Yale University Press, PO Box 209040, New Haven, CT 06520-9040, 1-800-987-7323.

From Asparagus to Zucchini: A Guide to Farm-Fresh Seasonal Produce. \$18.50 (incl. s&h). This cookbook, created by Madison Area Community Supported Agriculture Coalition, contains 200 pages of recipes, essays and resources. Michael Fields Agricultural Institute, W2493 County Road ES, East Troy, WI 53210, 414-642-3303.

The IPM Practitioner. Various subscription rates. Monthly journal from BioIntegral Resource Center (BIRC) about integrated pest management (IPM). Includes research updates, book reviews and listings of IPM resources. BIRC, PO Box 7414, Berkeley, CA 94704, 510-5242567, birc@igc.org.

National Organic Directory, 1997. \$44.95 + \$6 s&h. Provides information about labeling, certification and laws pertinent to organic products. Lists organic farmers, wholesalers, farm suppliers, resource groups, publications and certification organizations, including brief descriptions and contact information. Chapters describe issues important to organic agriculture, such as organic food exports, certification, National Organic Standards, U.S. state organic laws, organic marketing and the internet. Community Alliance with Family Farmers, PO Box 363, Davis, CA 95617, 916-7568518, nod@caff.org.

Wallace Institute's Web site. Homepage features a description of the Institute and its agenda of leadership, policy research, and information. The site has/will have links to the Institute's programs: Policy Studies Program, Agriculture Policy Project, Ward Sinclair Memorial Internship, and Education Outreach. *Alternative Agriculture News* is available at the site, which will also soon include information about and summaries of additional publications: *American Journal of Alternative Agriculture*, Policy Studies Program Reports, Occasional Papers, Annual Reports, and the Henry A. Wallace Annual Lecture.

<http://www.hawiaa.org>

Sustainable Farming Connection Web site. Two former editors of *The New Farm* magazine have launched a Web site that offers innovative production and marketing stories to help you cut costs, improve soil, protect the environment and add value to healthy food. It includes commentary by rural writers, timely news and action alerts, archived material, and links to other key sites, as well as farmer forums. For more information contact: Christopher Shirley, Committee for Sustainable Farm Publishing, 609 S. Front St., Allentown PA 18103, 610-7919683, cdshirley@aol.com.

<http://sunsite.unc.edu/farming-connection>

Alternative Agricultural Research and Commercialization Web site. AARC, a whollyowned corporation of the USDA, is a venture capital firm that makes equity investments in companies to help commercialize biobased industrial products (nonfood, nonfeed) from agricultural and forestry materials and animal byproducts. Most clients are small, ruralbased firms.

<http://www.usda.gov/aarc/>

WASTENOT listserv. An unmoderated discussion and forum for professional exchange among those in the research of, management, design, implementation, processing, treatment, analysis, regulation, marketing and distribution, or usage of organic wastes and the compostable materials from industrial, commercial, municipal, or agricultural sources. To subscribe, send the following command in the body of an email with no subject to: listserv@maelstrom.stjohns.edu

subscribe wastenot firstname lastname

CRP Hotline. The Center for Rural Affairs of Wathill, Nebraska has reactivated its Conservation Options Hotline to assist farmers and ranchers wanting to enroll in the Conservation Reserve Program, the new Environmental Quality Incentives Program, and the Conservation Farm Option. The hotline number is 402-9942021, and is staffed by Duane Hovorka.

National Pesticide Telecommunications Network (NPTN). NPTN provides objective, sciencebased information about a wide variety of pesticiderelated subjects including: pesticide products, pesticide poisonings, toxicology, and environmental chemistry. Sponsored by Oregon State University and the EPA. Available to any caller in the U.S., Puerto Rico, and the Virgin Islands. NPTN can connect callers directly with the Oregon Poison Control Center or the National Animal Poison Control Center, and can direct callers for pesticide incident investigations, safety practices, cleanup and disposal, and laboratory analyses. NPTN can be reached 6:30 a.m. to 4:30 p.m. PT Monday through Friday, excluding holidays. 18008587378, nptn@ace.orst.edu.

EPA's "319" Program Can Help Launch Agroforestry Projects

Section 319 of the federal Clean Water Act provides funds through states and tribes for the prevention and abatement of nonpoint source water pollution and restoration of watershed resources. This program is a potential source for 60% funding of agroforestry projects which improve or protect surface or ground water quality. Such practices might include: bioengineering using plantings for stream bank and shoreline stabilization; alley-cropping and bio-terracing on highly erodible soils; riparian buffers used for restoring aquatic habitat or for filtering out sediment, nutrients and/or pesticides from runoff, including urban storm-water runoff.

All state and local units of government (not federal) and non-governmental organizations are eligible to receive a grant from the "319" Program. For more information contact your state, tribe or regional "319" Program Coordinator; the Nebraska state coordinator is Dave Jensen, 402-471-3196.

Source: *Inside Agroforestry*, Spring 1997, National Agroforestry Center

Coming Events

[Contact CSAS office for more information.](#)

1997

- July 23-26 — Soil and Water Conservation Society Annual Conference
(focusing on ecosystem management within watersheds), Toronto, Ontario
- July 30-31 — Leopold Center for Sustainable Agriculture 10th Anniversary Conference,
Ames, IA
- Aug. 2 — Center for Rural Affairs Annual Meeting, Norfolk, NE
- Aug. 3-6 — 5th North American Agroforestry Conference - Exploring the Opportunities
for Agroforestry in Changing Rural Landscapes, Ithaca, NY
http://www.missouri.edu/~afta/afta_home.html
- Aug. 4-5 — Organic Farming Research Foundation Conference - Organic Rules: Are We
Ready? Oakland, CA
- Aug. 20-23 — International Symposium on Sustainable Agricultural Technology, Beijing,
China
- Aug. 27-30 — Association of Specialty Cut Flower Growers National Conference,
Portland, OR
- Sep. 15-19 — International Symposium on Soil Erosion and Dryland Farming, Xi'an,
China
<http://soils.ecn.purdue.edu/~sedf97/sedf97.html>
- Oct. 6-7 — Agricultural Research Institute 46th Annual Meeting - Agricultural Research:
Funding Now to Ensure Food for the Future, Rockville, MD
- Nov. 2-6 — 3rd North American Workshop of Farming Systems Research & Extension
Association - Food & Natural
Resource Systems: Integrating Diversity, Inquiry, & Action, Mt. Hood, OR
- Dec. 1-4 — 3rd IFOAMAsia Scientific Conference - Food Security in Harmony with
Nature, Bangalore, India

1998

- Jan. 9-10 — Great Plains Vegetable Conference, St. Joseph, MO
- Mar. 5-6 — National SARE Conference - Building on a Decade of Sustainable
Agriculture Research &
Education: Sharing Experiences to Improve Our Agriculture, Austin, TX
<http://www.ces.ncsu.edu/san/>
-

The Center for Sustainable Agricultural Systems bimonthly newsletter is currently available free in hard copy to U.S. addresses, and electronically via: SANET, PENPages, and the internal IANRNEWS. Current and back issues, along with other sustainable agriculture information is also available on the Internet:

<http://www.ianr.unl.edu/ianr/csas/>

For comments or questions, or to be added to the mailing list for hard copy, contact the editor at the masthead address, or e-mail csas001@unlvm.unl.edu.

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