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5-1985

Water Current, Volume 17, No. 3, May/June 1985

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"Water Current, Volume 17, No. 3, May/June 1985" (1985). *Water Current Newsletter*. 157.
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Water Current

May/June 1985

DIRECTOR'S REPORT

The Water Resources Committee of the Great Plains Agricultural Council and the Nebraska Water Resources Center are sponsoring a Symposium on Causes and Consequences of the Transition to Dryland Agriculture to be held October 29-31, 1985 at the Denver Airport Hilton Inn in Denver, Colorado.

The purpose of the symposium is to update state, federal and local agencies and organizations on the changing agricultural situation in the Great Plains and to explore institutional structures and alternatives needed for the conversion of irrigated land to dryland agriculture.

The conference, which begins at 1:00 p.m. on Tuesday, October 29, will include four plenary sessions on the following topics: (1) Overview of Agriculture in the Great Plains; (2) Technology for Conversion to Dryland Agriculture; (3) Institutional Needs for Conversion to Dryland Agriculture; and (4) Policy Needs for Conversion to Dryland Agriculture.

A block of rooms has been reserved for the nights of October 29 and 30 at the Denver Airport Hilton Inn. Special rates of \$45 for a single room and \$55 for a double room (plus tax) have been arranged for symposium participants. The symposium registration fee is \$40 which includes all sessions, a luncheon, refreshment breaks and proceedings.

For additional information or to obtain a copy of the program with registration material, contact the Nebraska Water Resources Center.



NEBRASKA WATER RESOURCES CENTER

NEW RESEARCH PROJECTS FUNDED

The Nebraska Water Resources Center's 1985 research program has been approved by the U.S. Geological Survey. Seven research projects will be funded beginning approximately June 1, 1985 through June 30, 1986 as follows:

- *Mycorrhizae as a Factor in Revegetation of Eroded and Disturbed Soils in Sand Dune Type Soils*, M.G. Boosalis, D.H. Yocum, Dept. of Plant Pathology, and P.E. Reece, Dept. of Agronomy (Scottsbluff).
- *Polishing of Biologically Denitrified Groundwater Supplies to Meet Drinking Water Standards*, M.F. Dahab, Dept. of Civil Engineering.
- *Assessing Agricultural Drought Impact: The Development of a Crop Specific Index for Winter Wheat*, D.A. Wilhite, Center for Agricultural Meteorology and Climatology.
- *Field Measurement of Evaporation and Transpiration for Irrigated Corn, Sorghum and Soybeans*, D.L. Martin and N.L. Klocke, Dept. of Agricultural Engineering.
- *Water Policymaking by the Courts in Nebraska*, R.D. Miewald, Dept. of Political Science.
- *Identification of a Management Strategy for a Conjunctive Surface-Groundwater System Using Optimization Methodology*, M.E. Nicklin, Dept. of Civil Engineering.
- *Development of Methodology for Investigating Instream Flows for the Maintenance of Wildlife Habitat in Nonequilibrium Alluvial River Systems*, A.S. Bleed, Water Resources Center.

SEMINAR PROCEEDINGS AVAILABLE

During each spring semester, the Nebraska Water Resources Center sponsors a Water Resources Seminar Series at the University of Nebraska-Lincoln. The 1985 seminar series was entitled "Aspects of Groundwater Quality."

Groundwater quality continues to be a concern in Nebraska and the Nation. This is emphasized by the preparation of a groundwater protection strategy by both the U.S. Environmental Protection Agency and the Nebraska Department of Environmental Control. The need for these strategies is becoming more apparent as agricultural production increases its reliance on chemicals for fertilization and pest control. This increased use, coupled with more instances of organic and inorganic chemicals being detected in groundwater supplies, makes groundwater quality protection doubly important in Nebraska. This seminar series examined various aspects of groundwater quality including sources of pollution, regulation and management, and on-going research.

Proceedings from the 1985 Water Resources Seminar series are currently being compiled and will be published shortly. Copies will be made available to water-related University faculty. Anyone else desiring a copy at no charge should contact the Nebraska Water Resources Center.

REGISTRATIONS COMING IN FOR CALIFORNIA TOUR

July 1 is the deadline for registration to go on the Nebraska Irrigation Tour to California, and Les Sheffield, tour coordinator, says that there are still spaces available.

Sheffield pointed out that the Sept. 8-13 tour to the West Coast replaces the Nebraska Irrigation Tour, but that there will be one in August, 1986. The 1986 Nebraska itinerary will include Alliance, Chadron, Crawford and Douglas, Wyoming.

Co-sponsored by the Nebraska Water Conference Council and the UNL Institute of Agriculture and Natural Resources, the California tour leaves Omaha, Kearney, North Platte and Scottsbluff by air for San Francisco. The Central Valley tour will leave from San Francisco and return there after visiting farms, universities, the Salinas Valley where 70 percent of all the vegetables in the U.S. are grown, plus other water-related sites.

For more information, contact Les Sheffield, 223 Filley Hall, University of Nebraska, Lincoln, NE 68583-0922, or call (402) 472-1772.

U.S. GEOLOGICAL SURVEY PROPOSALS REVIEWED

The Universities Council on Water Resources (UCOWR), has been assisting the U.S. Geological Survey in evaluating matching grant proposals submitted under Section 105 of the 1984 Water Resources Research Act. Faculty of UCOWR member universities listed in the Expertise Directory have been reviewing and rating the proposals submitted. The project is being administered through the UCOWR Executive Secretary's office located in the Water Resources Center, UNL.

A total of 369 proposals were submitted to USGS, and each proposal has been reviewed by two or three evaluators. The deadline for all proposal reviews was June 15, 1985. A total of \$2.25 million is available to fund research projects under Section 105. Bob Madancy of the USGS' Water Resources Division reports that they hope to announce project awards during September 1985.

1985 NEBRASKA WATER CONFERENCE TABLOID

The 1985 Nebraska Water Conference held March 19-20 with the theme "Water Management Implementation" was very successful and well attended. The Water Resources Center has developed a newspaper tabloid covering the major speakers and topics presented at the conference. The tabloid highlights the speakers' presentations and panel discussions from the conference. Editor of the tabloid is Pat Larsen, communications specialist in water resources.

Those interested in obtaining this recap of the 1985 Nebraska Water Conference may contact the Nebraska Water Resources Center. A limited number of copies will be available.

RESEARCH REVIEW

Project Title: *Conservation of Soil, Water and Energy Through Reduced Tillage Systems*

Principal Investigator: *Elbert C. Dickey, Associate Professor, Department of Agricultural Engineering, UNL*

Soil erosion and sedimentation have been identified as major water quality problems in Nebraska. In 1980, a project was initiated to evaluate and demonstrate the influence of selected tillage systems on soil erosion, water runoff, nutrient loss, crop yield, fuel and energy use, and labor inputs.

Tillage plots were established at two sites having different soil types and field slopes. Simulated rainfall, applied at the rate of 2.5 inches per hour, showed that soil erosion increased as the amount of residue remaining on the soil surface decreased. No-till planting, which left the highest percentage of soil surface covered with residue, resulted in the least amount of erosion, whereas the moldboard plow system had the most erosion. As little as a 20 percent residue cover reduced erosion by 50 percent of that which occurred from cleanly tilled, residue free soil conditions.

Reducing or eliminating field operations also decreased fuel use and labor requirements for tillage and planting. No-till had fuel and labor requirements 75 and 50 percent lower, respectively, than the moldboard plow system. When cultural energy inputs were considered, no-till still used 10 percent less total energy than the moldboard plow system, even though pesticide use was higher with no-till.

Simulated rainfall was effective for demonstrating differences in soil erosion from various tillage systems. These demonstrations, in conjunction with other educational programs, were effective in developing an increased awareness and adoption of conservation tillage in Nebraska.

JOBS AVAILABLE

University of Nebraska

The University of Nebraska-Lincoln is seeking applications for a water conservation-dryland crop production specialist for the Morocco Dryland Farming-Applied Research Project.

The specialist will be principally involved in developing improved practices for water conservation in different crop production systems. This may include evaluation of various tillage practices for both long and short-term fallow and practices for improving efficiency of water use in different crop rotations. The specialist will work jointly with the cereal production agronomist, soil fertility specialist, agricultural engineers and other staff to develop field research programs on and off the experiment stations. The overall goal of the project is to develop a Moroccan institutional capability to do applied research.

Qualifications include a Ph.D. in agronomy or soil science with research experience in water conservation in dryland crop production. A strong background in soil water relationships with knowledge of tillage systems and soil fertility as related to dryland cereal production is essential. Experience in advising graduate students is necessary. Must have a proven track record in dryland cereal research (5 to 7 years experience desirable). International experience as a member of a research team is desirable. Proficiency in French (F.S.I. 2 level) or willingness to learn is necessary. Applicants must be able to work in and foster a multidisciplinary research climate with Moroccan and American staff.

Salary is negotiable depending on background and experience. Position duration is initially two years with an extension possible by mutual agreement. Beginning date is September 1, 1985. The deadline for applications is July 1, 1985 or until an appropriate candidate is selected.

Interested applicants should send resume and names and addresses of three references to Dr. Dan Bigbee, Coordinator, MIAC/Morocco Project, 225 Keim Hall, University of Nebraska, Lincoln, NE 68583-0917. Telephone: (402) 472-5362.

The University of Nebraska is an Affirmative Action Equal Opportunity Employer.

University of Utah

The University of Utah Research Institute, Environmental Studies Laboratory is accepting applications for research associate on its acid deposition research project. The objectives of the project are to evaluate the factors that determine ecosystem and surface water sensitivity to acidification in high mountains of Utah, Wyoming and Idaho and particularly to investigate the relation of snowmelt and watershed hydrology to sensitivity; and to develop the capability of modeling the effects of changes in wet and dry on pollutants.

Qualifications include M.S. or Ph.D. in a field related to environmental sciences or chemistry. A strong academic and research background in soil and water chemistry with knowledge of acid deposition phenomenon is desired along with demonstrated ability to design and implement field experiments. Experience in the design and use of models for physical phenomenon, with computer modeling experience preferred and programming experience required.

Applicants should submit statement of research interests, vita, transcripts, list of publications and names of references to: University of Utah Research Institute, Environmental Studies Laboratory, 391 Chipeta Way, Suite D, Salt Lake City, UT 84108.

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CALL FOR PAPERS

An International Conference on Infiltration Development and Application will be held January 6-8, 1987 in Honolulu, Hawaii. The conference will stress applications of infiltration and will include presentations of recent developments in infiltration research. Some emphasis will be placed on the environmental quality aspects related to infiltration processes.

Papers are being solicited for presentation at the conference. Authors are invited to submit abstracts of papers related to the following conference topics: (1) History of infiltration research and application; (2) Recent developments and perspectives of infiltration theories; (3) Infiltration processes in the rainfall-runoff relationship; (4) Processes of rainfall, infiltration, runoff and erosion; (5) Evaluation of temporal and spatial variations of infiltration; (6) Remote sensing of soil properties, instrumentation and measurement; (7) Infiltration processes in irrigated agriculture; (8) Fate of pesticides, fungicides and fertilizers; (9) Effects of acid rain, soil media and silent lakes phenomena; and (10) Groundwater recharge, water quality and snow-melt effects.

One clear original and two copies of the abstract written in English and not exceeding 200 words should be submitted double-spaced on 8-1/2 x 11 in. bond paper. The title and full mailing address of each author should be footnoted.

Send abstracts before SEPTEMBER 1, 1985 to: Professor Yu-Si Fok, General Chairman, ICIDA, Water Resources Research Center, University of Hawaii at Manoa, 2540 Dole Street, Honolulu, Hawaii 96822.

MEETINGS AND CONFERENCES

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| July 16-19, 1985 | ASCE Irrigation and Drainage Division will sponsor a Specialty Conference on "Development and Management Aspects of Irrigation and Drainage Systems" in San Antonio, TX. For additional information, contact: ASCE, 345 East 47th Street, New York, NY 10017-2398. Telephone: (212) 705-7496. |
| July 29-30, 1985 | Western Water Seminar focusing on groundwater and financing will be held at Park City, Utah. Sponsored by the National Water Resources Assoc. Registration fee prior to June 28 is \$150. For additional information, contact Litsa Deck, NWWA, 955 L'Enfant Plaza, S.W., Washington, D.C. 20024-2170. Telephone: (202) 488-0610. |
| July 29-31, 1985 | Annual Meeting of Universities Council on Water Resources will be held at the University of Massachusetts at Amherst. The theme is "University Partnerships in Water Resources: Industry, State and Local Government, Citizens." Registration fee is \$95. For additional information contact: Executive Secretary's Office, 310 Ag. Hall, University of Nebraska, Lincoln, NE 68583-0711. Telephone: (402) 472-3305. |
| August 11-16, 1985 | The 21st Annual American Water Resources Association Conference and Symposium will be held in Tucson, Arizona. Conference theme is "Water Demand: Sharing a Limited Resource." Symposium theme is "Groundwater Contamination and Reclamation." For additional information, contact: Dr. N. Buras, Head, Department of Hydrology and Water Resources, University of Arizona, Tucson, AZ 85721. |
| August 19-20, 1985 | Conference on Practical Applications of Ground Water Models will be held at Columbus, Ohio. Sponsored by National Water Well Assoc. and the International Ground Water Modeling Center, Holcomb Research Institute. Registration fee before July 29 is \$195 for NWWA members and \$245 for non-members. For additional information, contact: Ground Water Modeling Conference, NWWA, 500 West Wilson Bridge Road, Worthington, OH 43085. Telephone: (614) 846-9355. |
| September 18-20, 1985 | Conference on "Water Policy: 1985" sponsored by the National Water Alliance will be held in Washington, D.C. Registration fee is \$85 for NWA members and \$100 for non-members. For additional information, contact Nancy Olson Pascale, National Water Alliance, 50 "E" Street, S.E., Washington, D.C. 20003. Telephone: (202) 646-0917. |
| October 7-8, 1985 | Technology Transfer Exchange Forum will be held at Michigan State University. Goals are to raise awareness about components of successful information transfer efforts and to provide for exchange of ideas on the latest technologies in information dissemination. For additional information, contact Frank D'Itri, Institute of Water Research, Michigan State University, 334 Natural Resources Bldg, East Lansing, MI 48824. |

PUBLICATIONS

The following publications have been received recently by the Water Resources Center. They have been forwarded to C.Y. Thompson Library on UNL's East Campus for cataloging. Persons on campus may obtain the publications through UNL's library system. Others are encouraged to request copies they desire from the organization issuing the publication.

- (1) *Improved Emitter and Network System Design for Wastewater Reuse in Drip Irrigation*, Technical Report No. 163, July, 1984, University of Hawaii at Manoa, Water Resources Research Center, 2540 Dole St., Holmes Hall 283, Honolulu, HI 96822.
- (2) *Water-Use Coefficients and Resource Multipliers for O'Ahu, Hawaii*, Technical Report No. 164, August, 1984, University of Hawaii at Manoa, Water Resources Research Center, 2540 Dole St., Holmes Hall 283, Honolulu, HI 96822.
- (3) *Reppun V. Board of Water Supply: Property Rights, Economic Efficiency and Ensuring Minimum Streamflow Standards*, Technical Report No. 165, September, 1984, University of Hawaii at Manoa, Water Resources Research Center, 2540 Dole St., Holmes Hall 283, Honolulu, HI 96822.
- (4) *Optimal Operation of a Multiple Reservoir System*, No. 193, February, 1985, Water Resources Center, University of California, 2102 Wickson Hall, Davis, CA 95616.
- (5) *Food Habits of Adult Yellow Perch and Smallmouth Bass in Nebish Lake, Wisconsin*, Technical Bulletin No. 149, 1984, Department of Natural Resources, P. O. Box 7921, Madison, WI 53707.
- (6) *Washington State's Water - A 1984 Report*, State of Washington Water Research Center, Washington State University, Pullman, WA 99164-3002.
- (7) *Small-Scale Hydroelectric Power Demonstration Project*, City of Gonzales, Texas, July 1984, U. S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.
- (8) *Regulations Governing the Use of Agricultural Pesticides*, Bulletin 212, Pesticide Impact and Assessment Project Manual No. 3, Food and Resource Economics Dept., University of Florida, Gainesville, FL 32611.
- (9) *Summary Guide to Regulation of Agricultural Pesticides*, Circular 618, Food and Resource Economics Dept., University of Florida, Gainesville, FL 32611.

WATER CURRENT

Water Current is published by the Nebraska Water Resources Center (NWRC), Conservation and Survey Division, which is a division of the Institute of Agriculture and Natural Resources at the University of Nebraska-Lincoln.

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No. 163, July, 1984, University of Illinois at Urbana, Water Resources Research Center, 2540 Dow St.,
Urbana, IL 61822.
- (2) Water Use Coefficients and Control Methods for OMA, Final Technical Report No. 164, August,
1984, University of Illinois at Urbana, Water Resources Research Center, 2540 Dow St., Urbana, IL
61822.
- (3) Report V, Board of Water Supply Property Rights, Economic Efficiency and Property Rights
Seminars, Technical Report No. 165, September, 1984, University of Illinois at Urbana,
Water Resources Research Center, 2540 Dow St., Urbana, IL 61822.
- (4) Control Operation of a Multiple Reservoir System, No. 166, February, 1985, Water Resources Center,
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- (5) Food Habits of Adult Yellow Perch and Spottail Catfish in Fallow Lake, Wisconsin, Technical Report
No. 149, 1984, Department of Natural Resources, P.O. Box 7955, Madison, WI 53707.
- (6) Washington State Water - A 1984 Report, State of Washington Water Resources Center, Washington
State University, Pullman, WA 99164-5002.
- (7) State of the Hydrologic Power Development Project, No. 167, April, 1984, U.S.
Department of Energy.

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Water Current is published by the Nebraska Water Resources Center (NWRC), University of Nebraska-Lincoln.
It is a journal of the Institute of Agriculture and Human Resources at the University of Nebraska-Lincoln.
Editor: William L. Power
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68583-0710. Telephone: (402) 472-3303.