

## AGRICULTURAL PHOSPHORUS MANAGEMENT FOR WATER QUALITY PROTECTION: ON-LINE EDUCATIONAL AND INFORMATION RESOURCES

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Phosphorus is an essential nutrient for crop production. However, P losses in runoff from agricultural land to surface waters often results in increased growth of aquatic vegetation. Cutting-edge research information needs to be disseminated quickly and effectively to address this P management issue. To meet this challenge, educational and informational resources have been developed for improved P management for water quality protection. These are available at no or minimal charge to the public.

### WEB-BASED LESSONS DEVELOPED

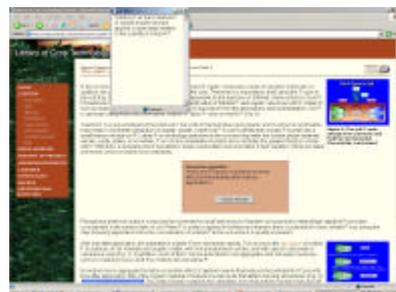
Four lessons of the “Manure Phosphorus and Surface Water Protection” have been developed:

- I. Basic Concepts of Soil and Water P
- II. Field and Management Factors
- III. Transport Factors
- IV. Assessment of the Risk of Agricultural P Delivery

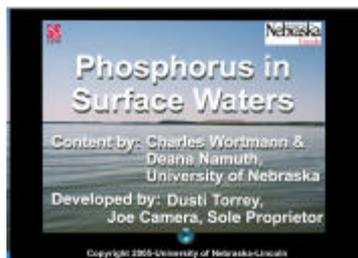
Each has been peer-reviewed in the *Journal of Natural Resources and Life Sciences Education*. They are housed in the internationally utilized Library of Crop Technology: <http://plantandsoil.unl.edu>



The lessons are targeted to technical service providers, students of upper under-graduate level, and MS degree students.

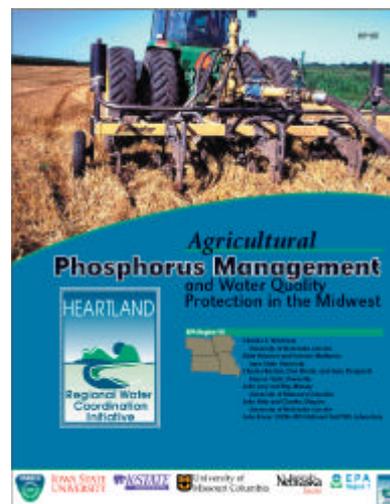


An interactive learning experience is achieved with accompanying animations to facilitate learning of complex topics. In addition, graphics, discussion questions and a hyper-linked glossary support each lesson.



Upon completion of the lessons, an automated quiz is given. To earn credit, 8 of 10 questions must be answered correctly. Certified crop advisors and technical service providers can earn one continuing education unit (CEU) for each lesson.

### A REGIONAL EXTENSION PUBLICATION



A team of 11 specialists from the Heartland Region (EPA 7) wrote this resource that nutrient management planners can use to understand:

- The risk of P delivery to surface waters
- The assessment of this risk, and
- P management options for reducing this risk.

The publication is available at <http://www.ianrpubs.unl.edu/epublic/live/rp187/build/rp187.pdf> or can be purchased from University of Nebraska–Lincoln Extension.

Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska–Lincoln cooperating with the Counties and the United States Department of Agriculture.

University of Nebraska–Lincoln Extension education programs abide with the nondiscrimination policies of the University of Nebraska–Lincoln and the United States Department of Agriculture.

### WEB-SITES

Educational resources, information and planning and management tools for use in Nebraska are available at <http://www.cnmp.unl.edu>.



The web-site of the Heartland Regional Water Coordination Initiative offers information on P management for EPA Region 7 (Iowa, Kansas, Missouri, Nebraska). Virtual tours address alternatives in manure management.

<http://www.heartlandwq.iastate.edu/default.htm>

