



Land Grant Colleges' and Universities'

Southwest States & Pacific Islands

Regional Water Program

A Partnership of USDA CSREES
& the Land Grant System

New Nitrate Hazard Index Tool Available for Growers



Growers in the Southwest can now assess the potential hazard of groundwater contamination by nitrate based on their soil type, crop, and irrigation method. A new hazard index (HI) has recently been developed by Dr. Laosheng Wu, Associate Director of the UC Center for Water Resources, Dr. John Letey, and other researchers at the Center.



Audience at one of six workshops conducted in late 2004.

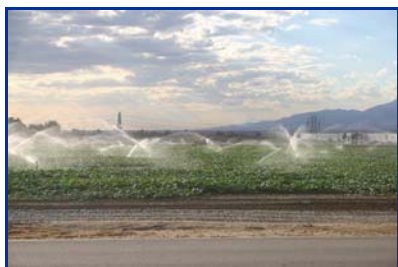
The HI incorporates information from 590 soil surveys published by the United States Department of Agriculture – Natural Resources Conservation Service, representing irrigated soils in California, Arizona, and Nevada; crop characteristics for 150 crops (or crop variations) grown in the region; and common methods of irrigation. Soils are rated on a scale of one through five while crops and irrigation both have a scale of one through four. In each case, “one” represents the lowest relative vulnerability. The three component ratings are multiplied to give an overall HI rating, which can range from one through eighty.



Extension specialists inspecting drip lines on a strawberry field.

The HI is a web-based system designed to provide information for farmers to voluntarily target resources for management practices that will result in the greatest level of reduced nitrogen contamination potential for groundwater by identifying fields with the highest vulnerability.

Workshops to introduce the system to personnel from Cooperative Extension, NRCS, and resource agencies were conducted in California, Arizona, and Nevada last November and December. An additional workshop is currently being planned for early spring in San Diego County.



Sprinkler irrigation of broccoli in southern California.

In 1994, the California State Water Resources Control Board appointed a Nutrient Technical Advisory Committee (TAC) to propose a nutrient management approach in California that would meet the varied interests of those who have a stake in the quality of California’s waters. Despite a final recommendation that each farmer complete a hazard index for each field, similar to that described here, implementation of such a plan was beyond the scope of the TAC’s assignment. The Regional Water Quality Coordination Program adopted the plan, and expanded the scope to include Arizona and Nevada along with California.

By the Numbers

- 590** – soil series descriptions evaluated and incorporated into the system
- 1-80** – range of values for final HI rating
- 6** – workshops conducted in Nov.-Dec. 2004 to introduce the system

University of Guam • American Samoa Community College • College of the Marshall Islands



College of Micronesia • Northern Marianas College • Palau Community College

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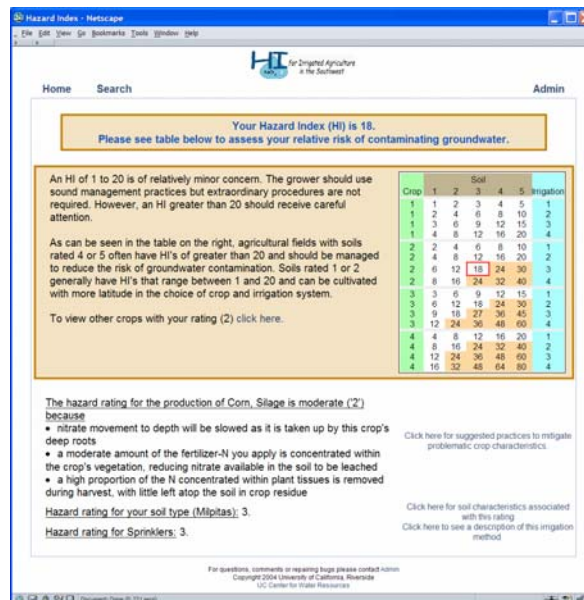
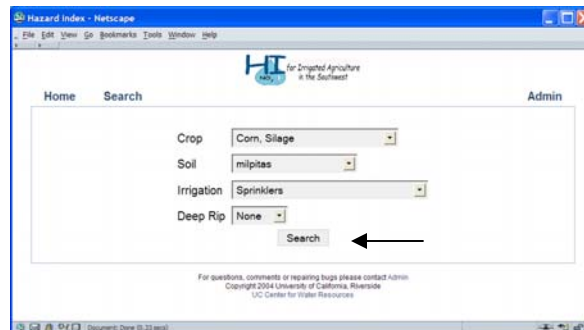
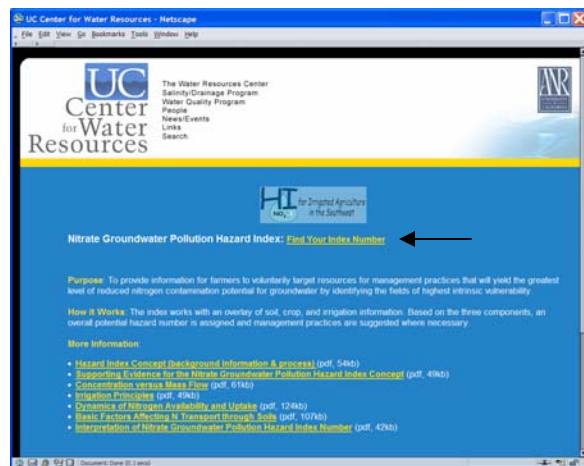
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Easy as 1-2-3!

The Hazard Index for irrigated agriculture in the southwest is hosted at the University of California Center for Water Resources website: www.waterresources.ucr.edu; just click on the “Nitrate Groundwater Pollution Hazard Index” link on the right side of the page.

On the HI home page (pictured, top right), simply click on the link to “Find Your Index Number” (see arrow). The HI search page (pictured, middle right) provides drop down lists to allow the user to select the crop, soil, and irrigation method for the system in question. Once selections are made, just click on the search button (see arrow) and the next screen (pictured, bottom right) will give the overall hazard rating. Also provided are the hazard ratings for the individual components (crop, soil, and irrigation) as well as links for further information on the characteristics of those components that led to its rating.

Further background documents available on the HI home page provide more information on the hazard index concept, interpretation of the hazard index number, and general principles used in developing this system.



About Our Program

The Regional Water Quality Coordination Program, one component of the USDA/CSREES, National Water Quality Program, seeks to ensure the integration of water quality efforts within the jurisdiction of each of the ten regions established by the U.S. Environmental Protection Agency. The Program is designed to make research, education, and extension resources of the university system more accessible to Federal, State, and local water quality improvement efforts, thus enhancing opportunities for agricultural producers, and rural communities to adopt voluntary approaches for the improvement of water quality.

Southwest States & Pacific Islands (Region 9)

<http://ag.arizona.edu/region9wq/>

National program website

<http://www.usawaterquality.org/>