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Nitrate Pollution Hazard Index for Irrigated Agriculture in the Southwest

Abstract: An internet-based, interactive hazard index (HI) was developed to assess the relative vulnerability of groundwater to agricultural nitrate contamination under irrigated conditions in the southwest states of California, Arizona, and Nevada. The HI uses factors of soil type, crop, and irrigation system, each with their own hazard rating, to assess the vulnerability, or potential hazard, of a site. Soils are rated on a scale of 1 to 5 while crops and irrigation are each rated from 1 to 4; in each case the relative hazard potential is lowest at 1. By multiplying the values from each factor, the specific site HI can range from 1 to 80. The greatest attention and resource investment can then be directed to areas with a high HI rating, while less concern is given to areas with a low rating. The HI contains a database of over 500 soils and 150 crops in the three states, with each soil type and crop ranked for their leaching potential. The HI has been introduced to extension specialists, crop advisors, and land managers through workshops conducted in each of the three states.

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