Pharm-Chemical Contamination: A Reconnaissance for Antibiotics in Iowa Streams, 1999

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About 90 percent of the roughly 2.5 million kilograms of antibiotics used for livestock production in the United States each year are given as growth-promoting and prophylactic agents rather than to treat active infections. These subtherapeutic levels of antibiotics are one of the factors that have allowed the confinement of animals in large production facilities, thereby lowering the costs of animal care. There has been increasing public concern, however, that this widespread antibiotic use may lead to contamination of the Nation's ground and surface waters -- increasing the potential for the creation of antibiotic-resistant bacteria that could pose a risk to human health.

Currently in the United States, there is little known about the occurrence and fate of antibiotics in the hydrologic system. A study was conducted during the spring of 1999 to provide baseline data on the occurrence of antibiotics in streams. A network of 30 streams was selected across Iowa representing basins containing low to intense hog production. Water samples were collected from these streams during the first runoff event following snowmelt (a time when there is an increased likelihood of antibiotic transport to streams). Water samples will be analyzed for a broad spectrum of antibiotics (20-30 compounds) using liquid-chromatography/mass-spectrometry technology. Reporting limits for these compounds are estimated to be between 0.05 and 0.2 microgram per liter.

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