



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

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MEMORANDUM

19 September 2000

Subject: Isoxaflutole state monitoring results,
May through July, 2000

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Summary: This report covers water samples collected between 8 May and 24 July 2000 taken by state agencies and sent to Aventis for analysis. Detection of isoxaflutole degradates was common in surface water, especially in Iowa. Approximately half of all surface water samples contain isoxaflutole or one of its two principal degradates. Detection of isoxaflutole degradates in groundwater was rare, but occurred at least once in the samples.

Surface Water Monitoring: Isoxaflutole rapidly degrades to RPA 202248, which has a level of concern for phytotoxicity of 22 ppt. RPA 202248 then degrades to RPA 203328, which is not phytotoxic. For surface water, 1124 samples were reported from the states of Iowa, Nebraska, Kansas and Missouri. RPA 202248 was detected (the limit of detection is 3 ppt) in nearly half of all samples and had concentrations above the level of 22 ppt in 15% (see

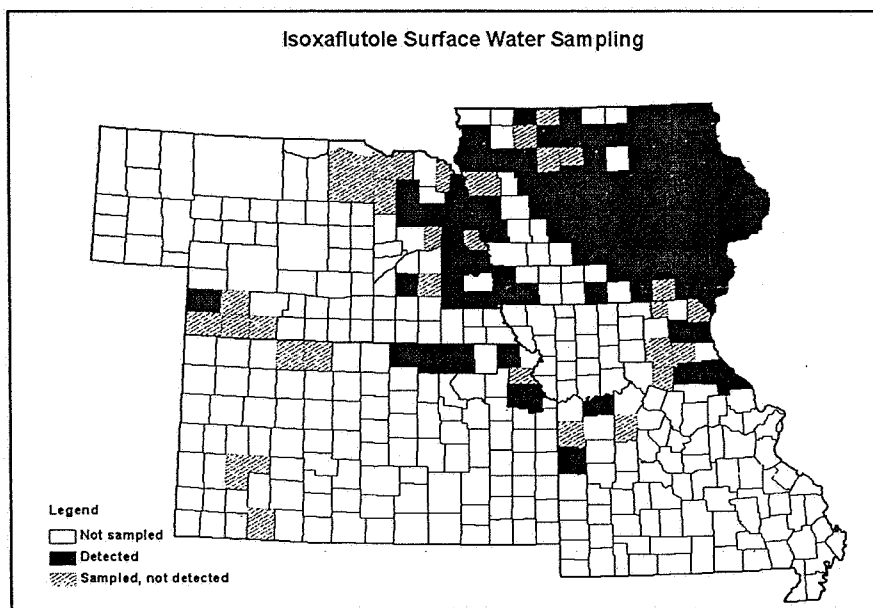


table). Peak concentrations of both isoxaflutole and RPA 202248 occurred in a sample from Madison County, Nebraska. That particular sample point was sampled 14 times between May and July and although isoxaflutole was only detected in one sample, RPA 202248 and RPA 203328 were detected in four and five samples respectively.

As shown in the map, isoxaflutole was found in the majority (101) of counties sampled (131). Degradates accounted for most of these detections, but the phytotoxic degradate, RPA 202248 was the most commonly detected of the three substances for which Aventis tests.

Chemical	Peak Conc. (ppt)	Location	Number of Samples with Concentration >22 ppt	Number of Samples with Detection (>3 ppt)
Isoxaflutole	38	Madison County, NE	3	52
RPA 202248	746	Madison County, NE	172	550
RPA 203328	213	Guthrie County, IA	77	406

Groundwater Monitoring: Between 18 April and 24 July 2000, the states of Kansas, Montana, Iowa, Nebraska and North Dakota had submitted 305 well water samples to Aventis for analysis. Isoxaflutole was not detected in any samples, but a single sample, from Ballantine, Montana, showed concentrations of both degradates around 10 ppt. This sample came from a shallow well (drilled to 3m, water table at 0.6m) which is not used for drinking, but it does show that isoxaflutole can make it to groundwater.

Samples from two sites in Kansas, (municipal wells from the cities of Allen and Lawrence) showed concentrations of the two degradates. The samples taken in late April from the two wells were noted to have been spiked with 1 ppb RPA 202248 and RPA 203328, and measured concentrations in all four cases (two cities, two degradates) yielded values within 7.5% of the known spike. Similar samples taken in July from the same wells contained the same note about 1 ppb spikes, but the note specifically referred to the April samples so it is unclear if the samples were spiked or not. The measured concentrations were 50ppt for RPA 202248 and 150 and 174 ppt for RPA103328. If these samples were also spiked with 1 ppb of each degradate, the analyses measured only about 5 to 15 % of the spike, a recovery that could cast doubt on the measured concentrations for all the other samples. On the other hand, if the July samples were not spiked, this shows a quick travel time into the water table of a 50 ft well. Aventis should make clear exactly how these samples (sample IDs 01-16367-199, 01-16367-205, 01-16367-2240, 01-16367-2245) were treated.

General Comments: In general there is little quality assurance for the state monitoring program. As such, the results of the analyses should be interpreted with that in mind. Most samples were analyzed within one or two months of sampling, but it is unclear if some degradation may have occurred during shipping or storage prior to analysis.

The State of North Dakota submitted 214 of the 305 well water samples, while the other five states submitted fewer than 40 samples each. Since corn is not a major crop in much of North Dakota, the amount of isoxaflutole use in the state is likely less than in more southern states, and this should be considered when evaluating the state monitoring results. Similarly, the State of Iowa submitted 741 of the 1124 surface water samples while Nebraska submitted 343 of the remaining 383 samples. With the large number of samples together with the large amount of corn grown in Iowa, it is not surprising, the state has more isoxaflutole detections than the other states.

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