RESPONSE OF NUTSEDGE TO CONCENTRATION OF METAM POTASSIUM AND DELIVERY WATER VOLUME

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Considerable research has been conducted with metam formulations over the years, but a lack of consistency has plagued much of this research. Greenhouse studies indicate, as do some field studies, that metam is capable of controlling nutsedge (*Cyperus* spp.), but results have varied from one study to the next. Studies have examined rates, application procedures, soil moisture at time of application, and numerous other potential factors, but there has never been a definitive answer to the question regarding the variable results. Concentration is an important issue with any fumigant and little information appears to be available regarding the response of nutsedge to metam concentration; therefore, studies were conducted to determine the concentration range necessary for control nutsedge tubers and the impact of delivery water volume on that activity.

The research was conducted in an area naturally infested with purple and yellow nutsedge (*Cyperus rotundus* and *C. esculentus*). Metam potassium was applied in 1 acre-inch of water through two drip irrigation lines per bed at concentrations of 0, 1000, 2000, 3000, 4000, and 5000 ppm. Nutsedge populations were determined at 1, 3, 6 and 9 weeks after application. Pepper was grown as a test crop to determine any impact on other soilborne pests. 1 week after application, concentrations of 1,000 ppm or higher controlled nutsedge but 2 weeks later nutsedge had begun emerging in more of the lower concentrations and controlled was observed only with concentrations of 3000 ppm or higher.

The impact of delivery water volume on a drip applied soil fumigant may involve not only the movement of the fumigant to the target site, but also the effective concentration delivered. A study was conducted with two concentrations of metam potassium (3000 and 6000 ppm) and three water volumes (0.5, 1 and 2 acre-inches of water). Pepper was included as the test crop. Results indicated that concentration was more important than water volume in this study.

- Metam potassium was applied to soil at concentrations of 0, 1000, 2000, 3000, 4000 and 5000 ppm through drip irrigation tubing.
- 1 week after application, 1000 ppm or higher controlled nutsedge.
- 3 weeks after application, 3000 ppm or higher controlled nutsedge.
- Application water volume did not have as much impact on nutsedge control as did metam potassium concentration.