

## EFFECT OF APPLICATION TIMING OF DRIP-APPLIED K-PAM® FOLLOWING CHLOROPICRIN

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**Introduction:** K-Pam® (metam potassium) and Vapam® (metam sodium) are useful products for replacement of methyl bromide/chloropicrin when properly applied but they have been reported to give erratic control of difficult to control weeds, particularly *Cyperus* spp., in strawberries, tomatoes, and other mulched vegetables in Florida and other states in the southeastern United States.

Sequential applications of K-Pam® or Vapam® following applications of either chloropicrin alone or chloropicrin plus 1,3-dichloropropene have demonstrated control of weeds, phytopathogenic fungi, and nematodes equal to that obtained from methyl bromide/ chloropicrin standard treatments in several trials in the southeastern United States and in California. Optimal performance from the combination treatments results when the K-Pam® or Vapam® applications follow the chloropicrin alone or the chloropicrin plus 1,3-dichloropropene treatments by 5-8 days. Optimal timing for the K-Pam® or Vapam® applications is not known but there is excellent evidence showing that the delay results in improved performance, especially for the control of *Cyperus* spp.

The study reported here reviews the results of application timing of drip-applied K-Pam® following chloropicrin in research conducted in 2006 in west central Florida by J. P. Gilreath and D.A. Toborsky.

**Methods:** The trial was conducted at the Florida Soil Fumigation Research Farm near Sun City, Florida, which previously was a commercial tomato farm for many years. The site was heavily infested with purple nutsedge (*Cyperus rotundus*). Treatments consisted of delaying application of K-Pam® for 0, 1, 2, 4, 6, or 8 days after applying chloropicrin using 3 standard fumigation gas knives (back swept) in a bedder just forward of the press section. Chloropicrin was applied at 150 lbs per treated acre on March 16, 2006. Beds were pressed, two high flow Eurodrip (0.45 gpm, 12 inch emitter spacing) drip tapes were placed 8 inches on either side of the bed centers, then the beds were covered with Bromostop vif mulch film.

Poly pipe headers and mains were assembled and connected to each plot for the 0 day after chloropicrin application treatment once the plastic laying was completed. K-Pam® was applied on the specified days by mixing it in the total volume of water required to deliver 1 acre inch of water.

**Results:** This study showed that by delaying application of K-Pam® by even one day following application of chloropicrin, control of purple nutsedge improved. Poorest control in the study came from applying the K-Pam® immediately after applying the chloropicrin. As time from the chloropicrin application to K-Pam® delivery increased to 8 days, purple nutsedge control improved. The practice of delaying drip-delivery of K-

Pam® for at least 5 days post application of chloropicrin is a sound one and the results of this study suggests that an even longer delay of approximately 8 days would be even more desirable as control increased with increasing time delay for the 8 days of this study. This may explain some of the variability in control in other studies with drip delivery of metam products.

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